

MANUFACTURERS RECORD

A Weekly Newspaper Devoted to the Industrial, Financial, Railroad,
Mining, Contracting, Engineering, Building, and General
Business Interests of the South and Southwest

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No. 11

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Single Copy 15 Cents

Essential to Prosperity

(From an address by United States Senator Underwood.)

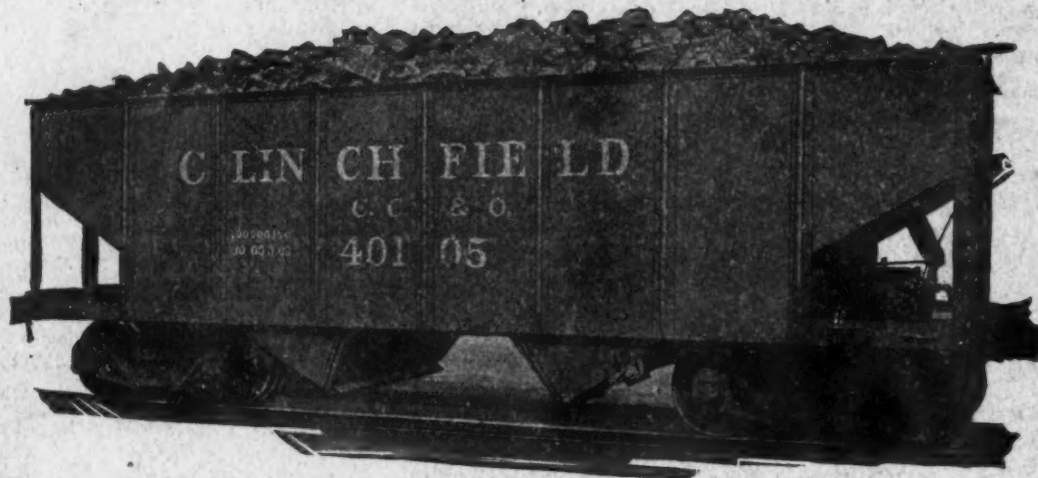
In recent years accumulated surpluses of railroads have largely disappeared, dividends have been greatly reduced and the ability to secure long-time loans at low rates of interest has passed away. Without cheap money for development, new facilities cannot be obtained and low rates for transportation maintained.

If railway investments cannot be made attractive to capital, is not the nation threatened with an inevitable breakdown of its transportation systems? We never can have permanent prosperity in the country until our great problem of transportation is settled, and settled wisely. There is no more difficult problem awaiting its solution ahead of us, and no more inviting field for the exercise of true statesmanship ever faced our public men.

BALTIMORE, MARCH 18, 1915

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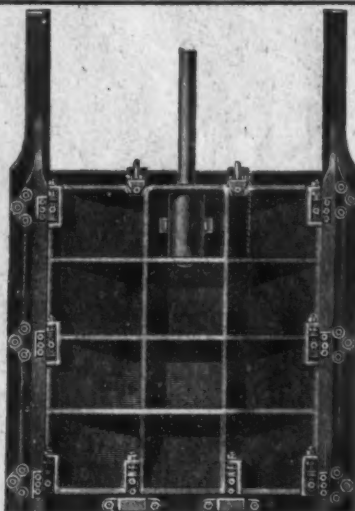
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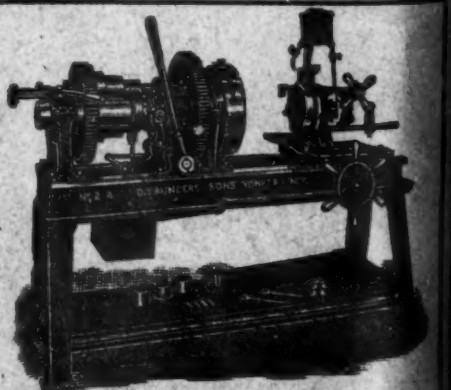
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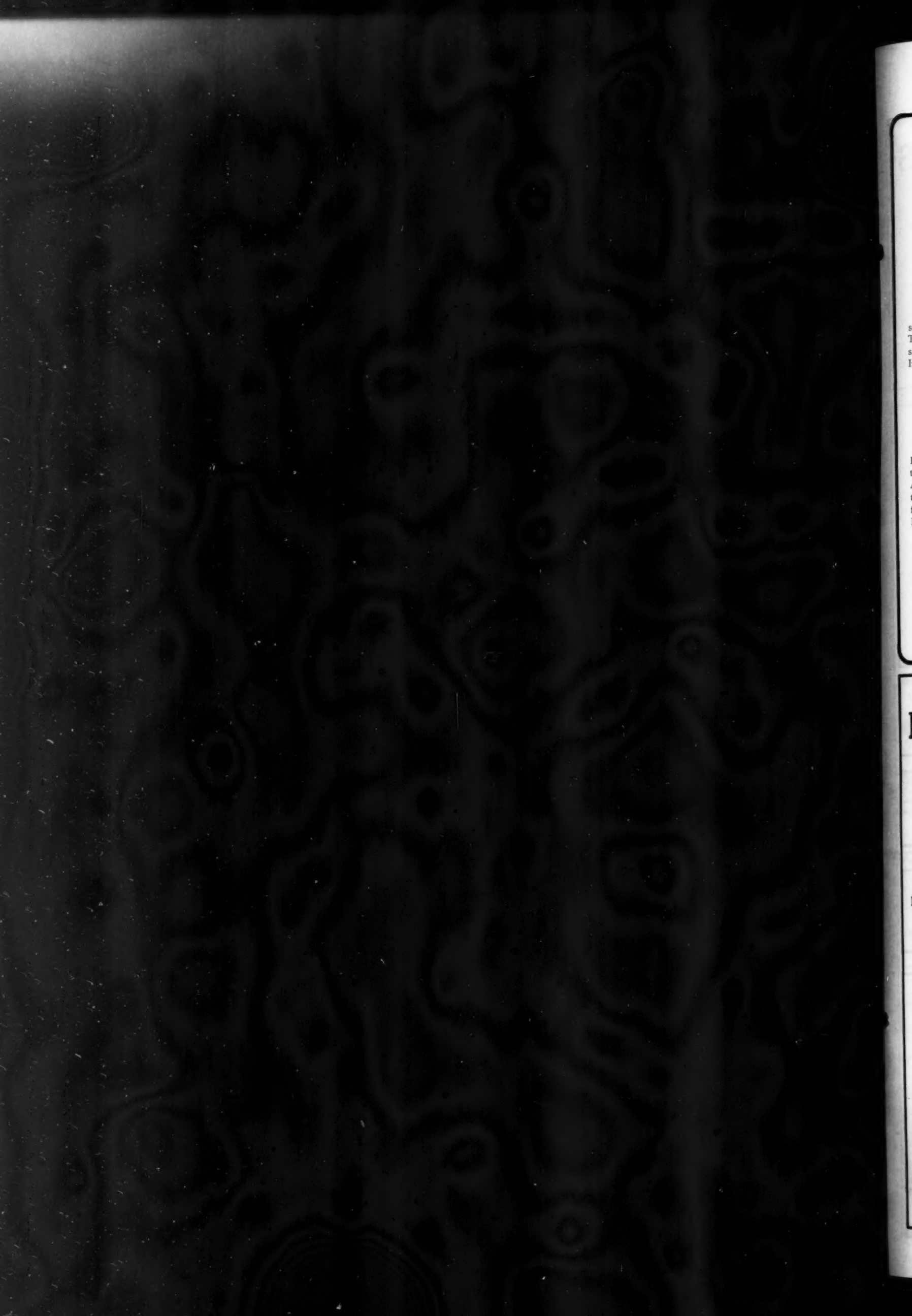


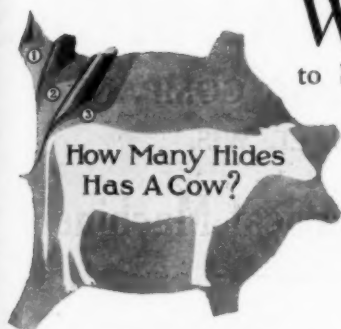
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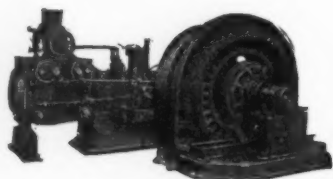
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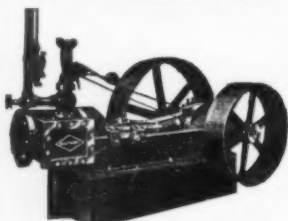
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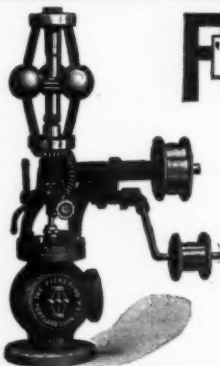
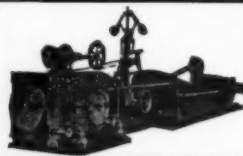
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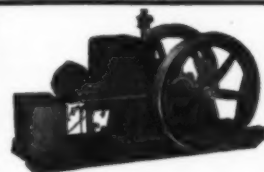
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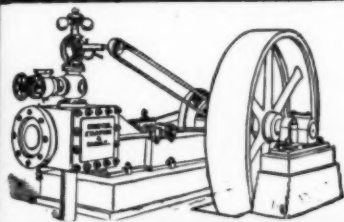
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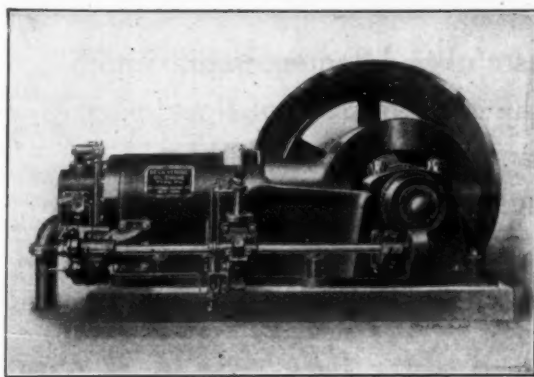


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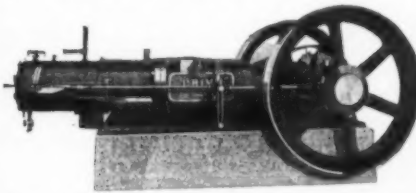
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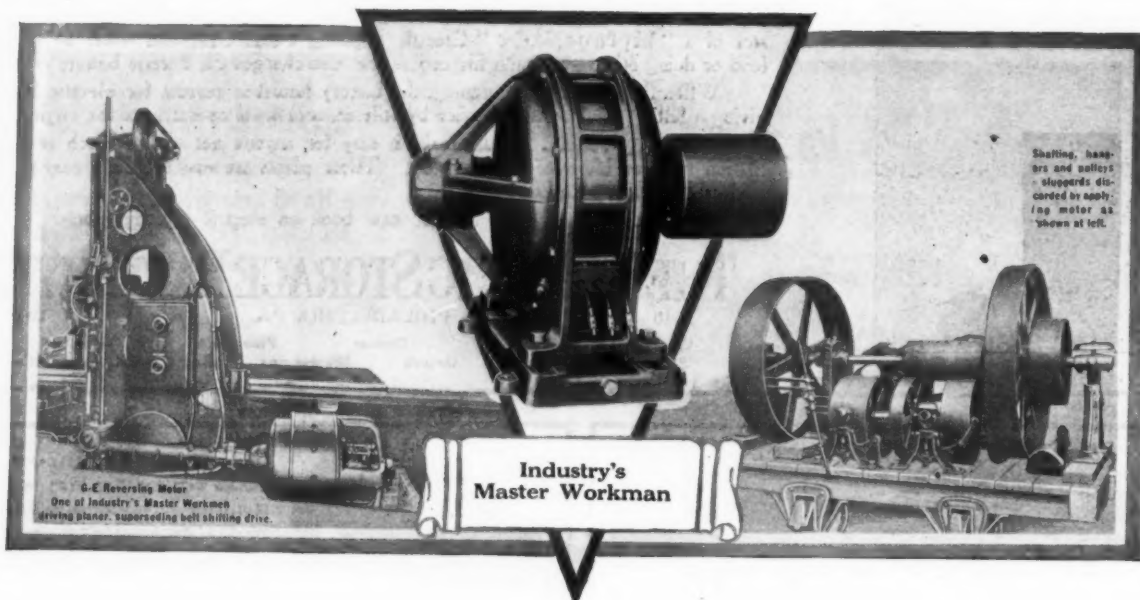
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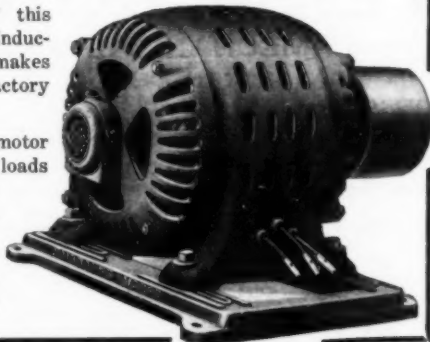
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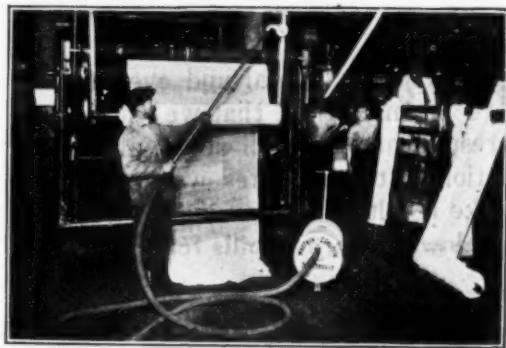
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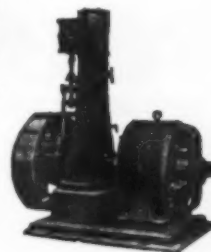
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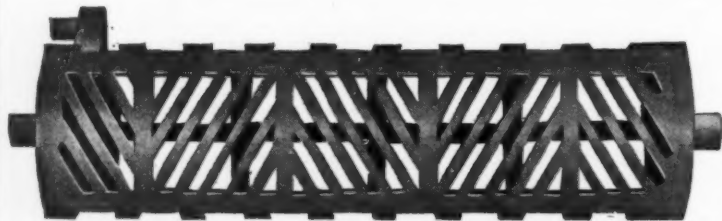
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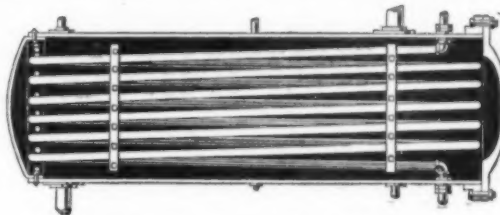
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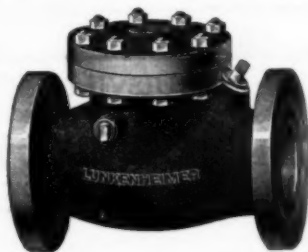


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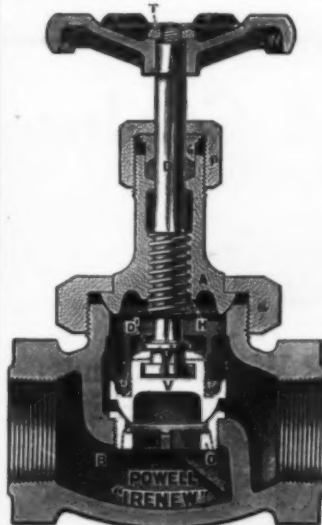
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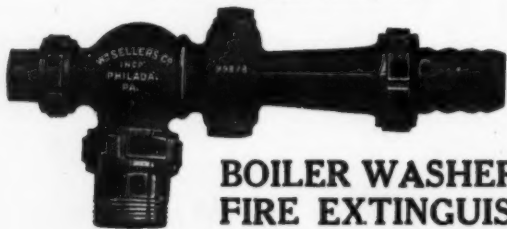
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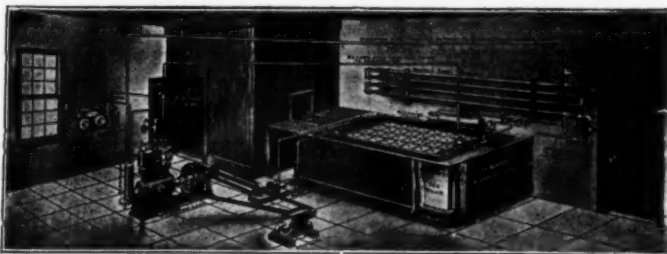
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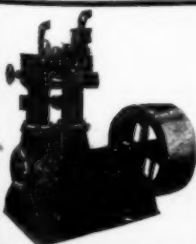
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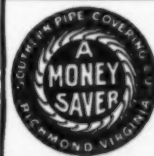
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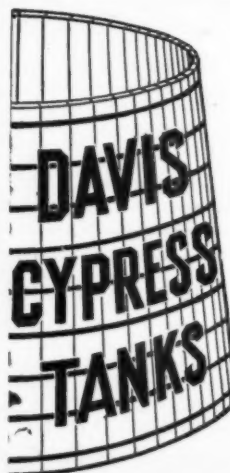
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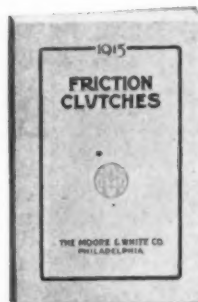
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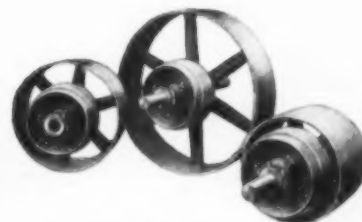
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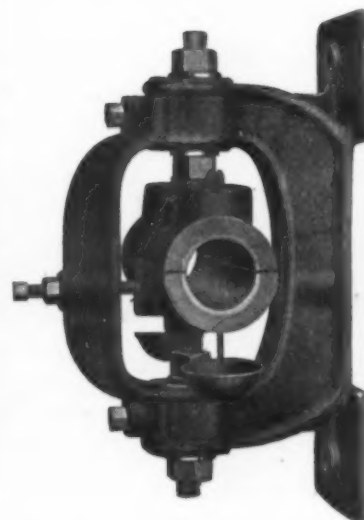
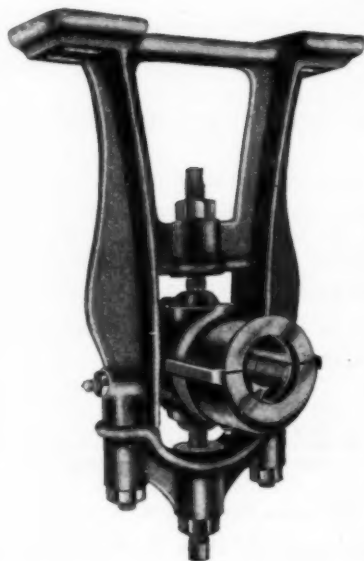
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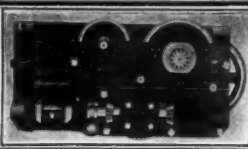
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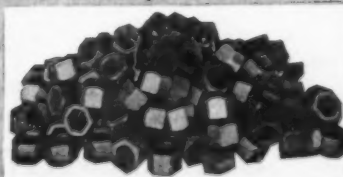
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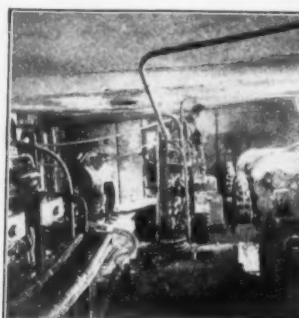




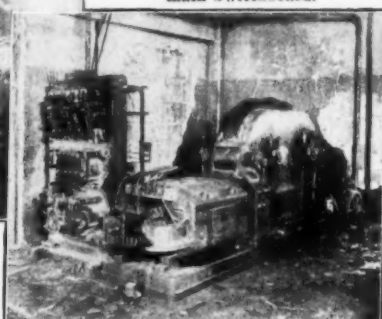
Storeroom of Empire Building, where fire started. View taken the morning after the fire.



Motor-room showing damaged condition of four Otis Elevator Machines due to intense heat. Note condition of Controllers and Conduits from main Switchboard.



Another view of Motor-room, showing effects of heat on electrical equipment. Discoloration of upper portion of Gear Cases indicates how hot the fire was in this room.



Elevator Machine No. 1 in operation just 64 hours after fire was under control.

A Fire Disaster that Severely Tested and Strongly Emphasized the Value of OTIS SERVICE

On the night of Thursday, September 3rd, 1914, a fire breaking out in the storeroom spread to, melted and destroyed the elevator electrical equipment in the Empire Building, Birmingham, Alabama.

On the afternoon of September 6th, 64 hours later, Otis Service had one of the four Otis Worm Gear Traction Elevators carrying passengers.

On September 8th, another Elevator was running.

On September 11th, one week after the fire, Otis Service had a third elevator in full operation, and the building's traffic was being satisfactorily handled. The fourth was too badly damaged to repair.

The Empire Building, a modern sixteen-story structure, had 97% of its rental space leased at the time of the fire. Its Otis Elevators were daily carrying 12,000 passengers. Any interruption in elevator service meant inconvenience and probable financial loss to the tenants, which in turn would affect the owners. The promptness of Otis Service saved them from practically all such inconvenience and loss.

You could hardly conceive of a more severe test upon Otis Service or a more convincing demonstration of the value that comes from the quick work and complete co-operation of the Otis Organization. In this instance, the parts for the first machine were shipped from the Southern headquarters at Atlanta, but for the other two, from far-distant New York.

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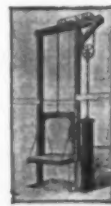
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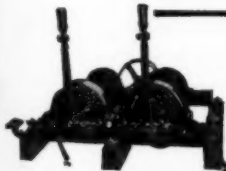
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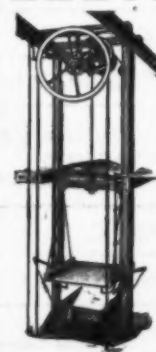
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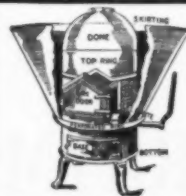
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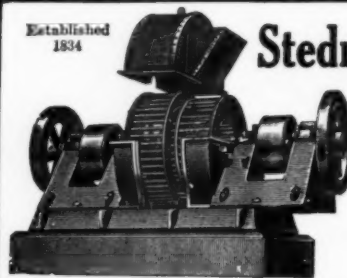
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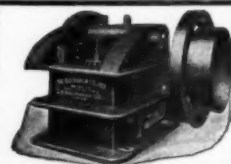
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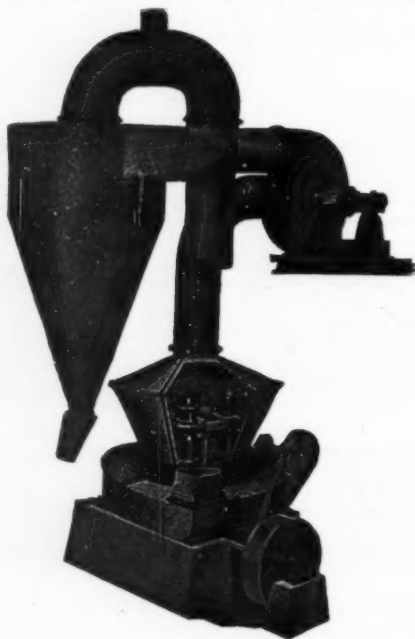
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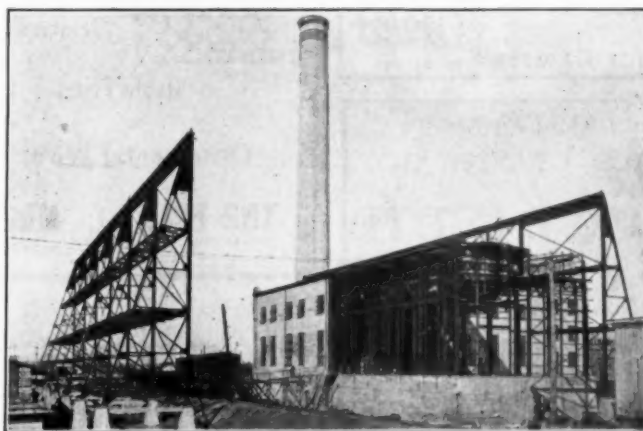
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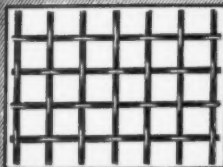
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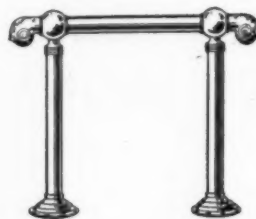
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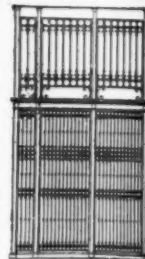
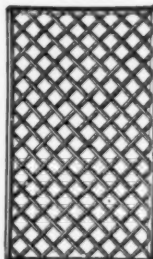
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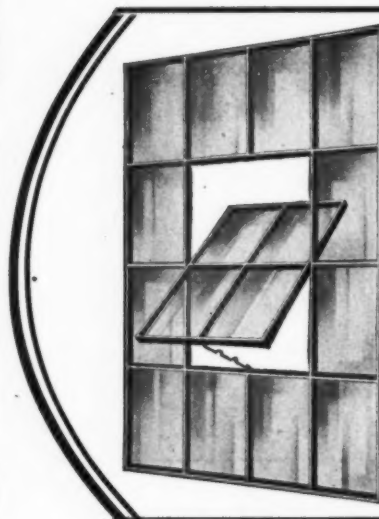
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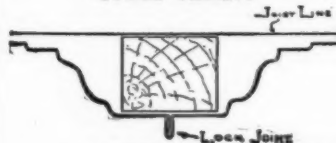
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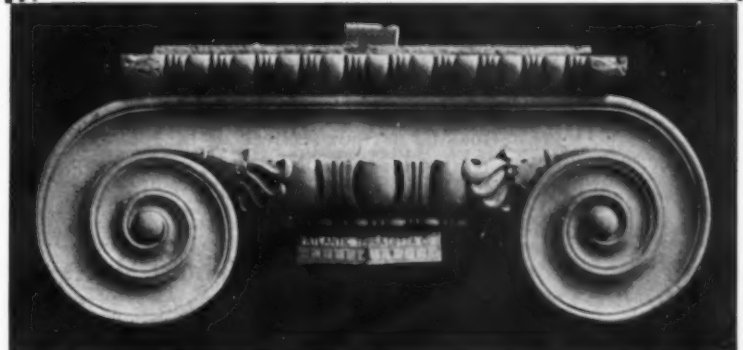
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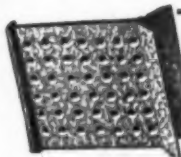
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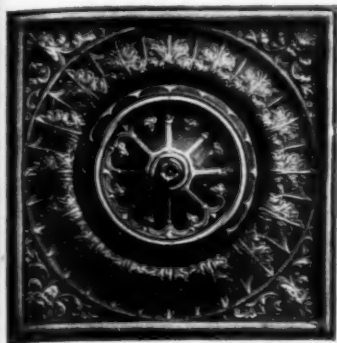
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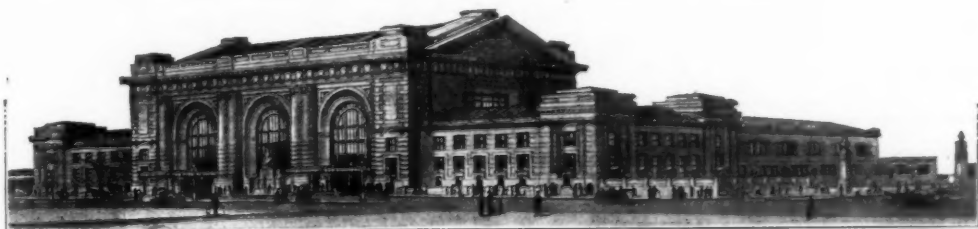
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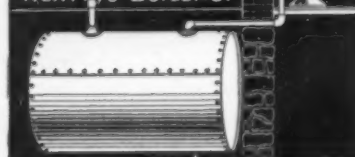
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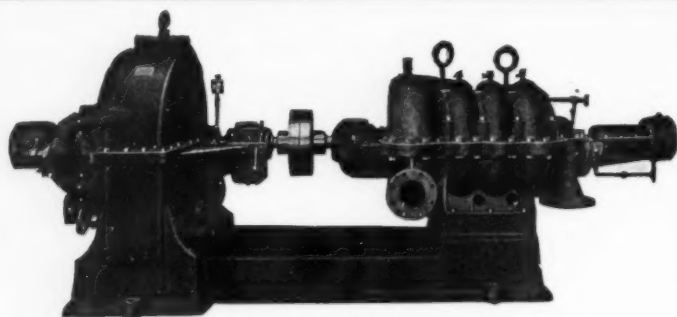
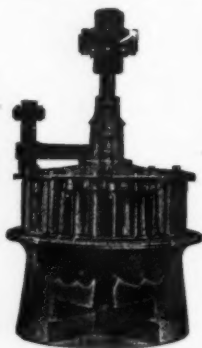
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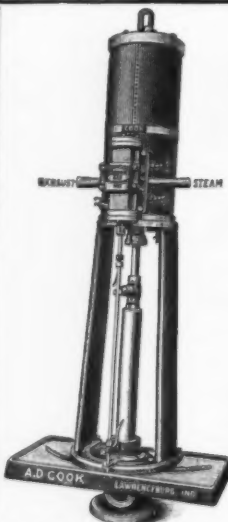
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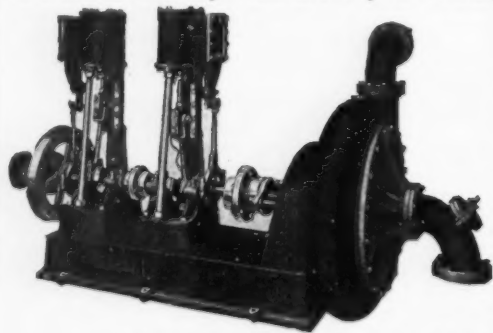
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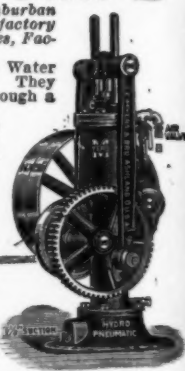
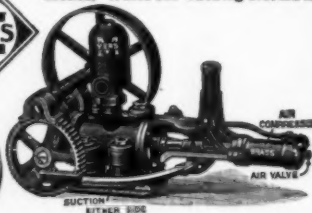
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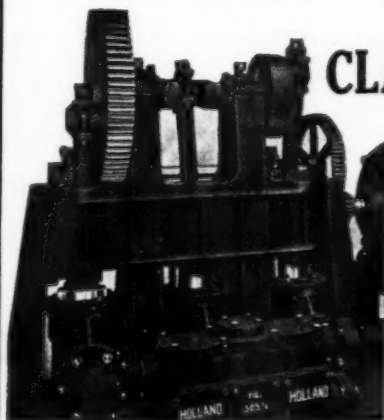
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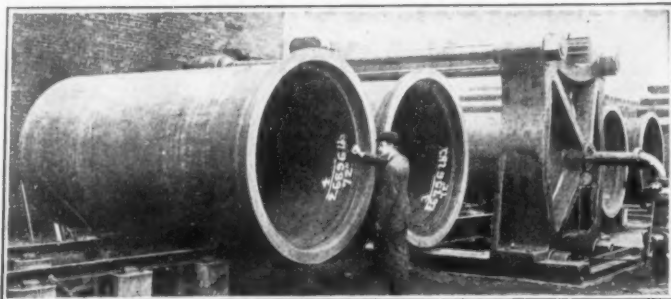
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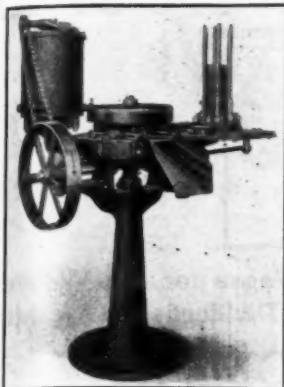
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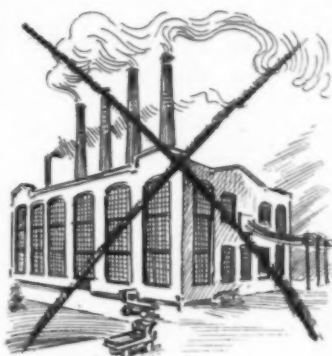
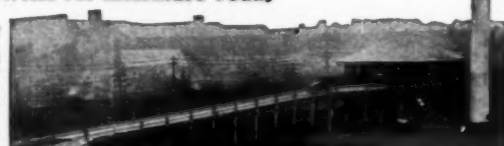
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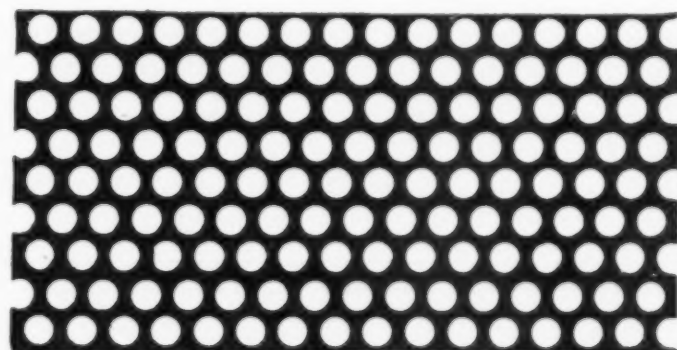
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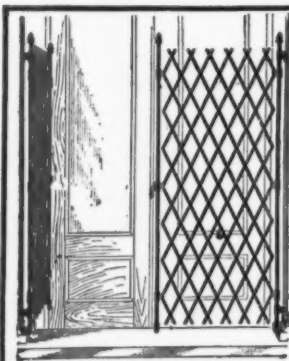
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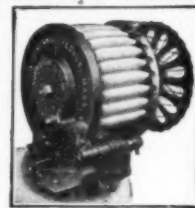
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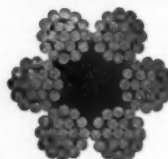
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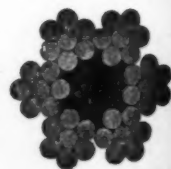


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THE SOUTH IN EXPORTS.

SOME indication of the effect of the European war upon the export trade of the United States in the current fiscal year is given in the figures of exports and imports during the past calendar year. In the fiscal year ended June 30, 1914, the value of exports of merchandise from all the customs districts of the country was, in round numbers, \$2,365,000,000, a decrease under the preceding fiscal year of \$101,000,000, and the value of the imports was \$1,894,000,000, an increase of \$81,000,000. At the same time, the value of exports through Southern ports increased from \$822,000,000 to \$868,000,000, and the value of the imports increased from \$179,000,000 to \$205,000,000. The second half of the last fiscal year constitutes the first half of the calendar year ended December 31, 1914. The European war was under way in the last five months of 1914, and that accounts for a decrease in the value of imports under the calendar year 1913 of \$4,000,000, from \$1,793,000,000 to \$1,789,000,000, and an acceleration of the decrease in exports, noted in the fiscal year of 1914, from \$2,484,000,000 to \$2,114,000,000, or by \$370,000,000.

In the calendar year the decreases occurred both as to the imports and exports in crude materials for use in manufacturing, in manufactures for further use in manufacturing and the manufactures ready for consumption, and the increases were only in foodstuffs in crude condition or partly or wholly manufactured and in food animals, as to imports, and only in foodstuffs in crude conditions and in food animals, as to exports. Up to August 31, 1914, there had been an increase of \$114,000,000 in the value of imports over the first eight months of 1913, with a decrease of \$213,000,000 in the value of exports. Comparison of six groups of exports, representing about 44 per cent. of the total exports in the calendar year, as made in the following table, is a fair revelation of the general trend:

	1913.	1914.
Breadstuffs	\$191,477,286	\$300,309,550
Cottonseed oil.....	17,816,296	14,635,368
Food animals.....	899,506	879,493
Meat and dairy products.....	138,946,692	128,282,034
Cotton	575,087,565	343,898,070
Mineral oils.....	147,174,161	138,381,994
Total	\$1,071,401,508	\$926,386,509

This comparison shows an aggregate decrease of \$145,000,000. The only increase in the groups was \$108,000,000 in breadstuffs, wheat increasing \$92,000,000 and flour \$5,000,000. The greatest decrease in any one group was \$231,000,000 in cotton.

The value of exports of cotton constitutes about 26 per cent. of the total value of merchandise ex-

ports from this country and about 53 per cent. of the value of all merchandise exports through Southern ports. The decreased cotton exports, therefore, account for the fact that that value represents only 16.2 per cent. of the total value of merchandise exports in the past calendar year, as compared with 23.1 per cent. in 1913, and also for the fact that the value of all exports from Southern ports in 1914 was about 32 per cent. of the value of exports from all the ports in the country, compared with the normal 36 or 37 per cent. Notwithstanding the decline thus indicated, which with the marked advance in cotton exports since January 1 seems likely to be so overcome that the showing for cotton in the present fiscal year will not be as regrettable as was expected six months ago, Southern customs districts maintain their relative importance among those of the country. In the past calendar year Galveston district ranked second in the country, with exports valued at \$197,000,000, or \$67,000,000 greater than the value of exports from all the Pacific Coast districts in continental United States; New Orleans, second, with \$181,000,000, or \$43,000,000 greater than Boston and Philadelphia combined, and Maryland, third, with \$107,000,000, or just about as great as the whole of New England.

A PIONEER IN RECLAMATION.

EXPERTS estimate that within ten years a tract of a million acres of land in Minnesota, reclamation of which at a cost of \$1,000,000 is to begin this year, will increase in value from \$6,000,000 to \$100,000,000. The land is a swamp several hundred miles broad in parts, and the reclamation is expected to be completed by 1925. The estimate is borne out by facts of results of such reclamation of wet lands in other parts of the country, notably in Louisiana.

It is a strange coincidence that announcement of the Minnesota project was made on the day of the death at New Orleans of Edward Wisner, a pioneer in that sort of utilization of natural resources. Mr. Wisner, who was a native of Michigan, removed to Louisiana in 1888, at the age of 28, and twelve years later entered upon the enterprise of draining wet lands on a large scale, which will always link his name with the history of the material development of his adopted State. There is probably no more fertile area in the world than the 45,000 square miles of Louisiana built up, from a depth of 1000 or more feet in some portions, of the soil-washings from the thirty-two States drained entirely or in part by the Mississippi River and the humus formed in the decay during centuries of luxuriant vegetation. Ten million of the 29,000,000 acres of the State are known as wet lands, lying either at a lower level than the leveed rivers or so level that the water stands on them. Their soil is just as fertile as that of any other soil in the State, and all that it needed to bring it into rich productiveness is light and air let in by drainage. Edward Wisner knew all that. He dreamed with his eyes open of the time when land that he could buy at 12½ cents an acre would be worth at least \$120 an acre; he had the courage of the convictions of his dream and the zeal and the energy to enter upon the realization of the dream, even in the face of more or less ridicule, and reluctance of others to join with him. Cut off in the prime of life, he lived long enough to see scattered tracts bought by him for a levy an acre bringing more than \$20 an acre, and, which is of more importance, many other men following the trail blazed by him thirteen years ago and steadily widening it as they are bringing wet lands under cultivation. Whenever reclamation of wet lands is mentioned in Louisiana the name of Edward Wisner will be remembered.

CONVALESCING FROM ECONOMIC DISEASE.

REFERRING to the railroad situation in this country and to an editorial on the subject in our last issue, R. L. Williams of Middendorf, Williams & Co., Baltimore, writes to the MANUFACTURERS RECORD that he finds in the West, whence he has just returned, business men hopeful and cheerful, not so much because good times are already at hand, but because they feel business will be allowed to have a chance. In the defeat last fall of the full-crew law in Missouri by the voters on referendum and to the effort underway to abolish the two-cent passenger rate he sees evidence of the popular tendency. He adds:

It is strange that the real constructive work of this kind should begin and succeed first in the West rather than in the East, where we are supposed to be so conservative. I am glad you published the editorial, and everything you can do along that line will help the railroads. In helping the railroads you are helping the cause of every man, woman and child in the country.

In the human body all parts are more or less affected by any serious ailment centered in some vital part. Left to natural courses the ailment ends in death for the victim, or recovery begins at the seat of the trouble. Where legitimate medicine or surgery intervenes the effort is made to check the progress of the ailment and to accelerate recovery by dealing with the immediate cause. Mere treatment of symptoms is the task of the quack and the charlatan, and only extraordinary vitality of the victim saves him from dissolution. It is so with the body politic, of which the railroad is rather a vital organ. And the railroad has been one of the vitals of the country that have been most seriously affected by economic diseases that prevailed in the past twenty-five or thirty years. These diseases have not happened in the vast majority of cases through deliberate intent on the part of the body politic or of the parts immediately affected. They have usually been the result of ignorance or recklessness, ignorance without reliable guidance in tackling new conditions suddenly developed, recklessness in assuming for one's self immunity from consequences common to all. Physicians have not been wanting. Popular government is always prolific of political practitioners. It was never more so than in the past generation. The marvelous changes in industry, commerce, transportation and finance wrought with a rapidity far beyond the rate of growth of the capacity of the body politic to assimilate them healthfully were unrivalled chances for expansion in the numbers of practitioners. The old-line regular schools, bound for their very existence to differ with each other, were so hard put that they began to lose much of their hidebinding and to become eclectic one of the other. For, a host of new lights were appearing in the current unsettlement of former things and thoughts, it being only necessary to possess a strident voice and unlimited nerve for anybody to gain recognition as a political physician, and their success soon brought the whilom monopolists—by division—into such a state that they differed only in name.

Meanwhile the body politic was suffering more and more. The infection was spreading. High temperatures were followed by prolonged chills at more frequent intervals. The vitals in which the disease had originated began to deteriorate far below the condition that had been theirs before their temporary exaltation under the influence of the first fever. The situation was becoming desperate. All the while the remedy for the whole main trouble was at hand, the application of the principles of equity in the administration of law adapted to radically changed conditions, and some new legislation fitted to the

treatment of minor troubles induced by the major had fortuitously gotten upon the statute books. But all was forgotten in the craze for the concoction and use of nostrums.

There is, however, an end to all things, even evils. It begins to look like the end of thirty years of economic disease was coming into sight. Nostrums have become nauseating. They are being ejected and rejected in increasing volume. That revulsion should begin in the West is perfectly natural. Recovery must begin at the point most seriously affected.

For future safety a few facts should be borne in mind. Unmodified remedies that were fairly satisfactory thirty or forty years ago may not be expected to be tried again, except by the rankest inexperience that will discount its own power. Those remedies would probably not be as effective now as they were then. The body politic has grown since, and has been materially changed. But the essence of the old remedies must be used if this country is to become as great as its potentialities demand. The lessons of experience ought to suffice to prevent railroads from rendering themselves liable to reinfection and warn the people against resorting to quackery or charlatany for the cure of any economic troubles.

DEVELOPING NATIVE POTASH RESOURCES.

SALE in New York last week of 10,000 tons of potash, derived from the kelp of the Pacific Coast, at a price equal that obtained for imported potash in normal times must serve to increase the public interest in the possibilities of the kelp beds of vast area and content to the end that one more step be taken toward independence of foreign materials for American industries. James H. Scott, who, according to the *New York Times*, made the sale, is quoted as follows:

Some years ago Government investigators tackled the problem of obtaining potash at home, and since the beginning of the war the high price of German potash has made acute the necessity of producing potash in the United States. Considerable money and time have been spent by myself and a small group of men out on the Pacific coast in perfecting a process for the commercial harvesting and manufacture of what is known as "giant-bladder" kelp, the heaviest and largest of all the Pacific Ocean seaweeds. This giant kelp, in its completed form, contains over 20 per cent. of potash, as well as other substances valuable to fertilizer consumers.

I have former Secretary Wilson for my authority when I say that the possible production of potash obtained exclusively from the Pacific coast kelp beds could be made to exceed the total imports of potash from Germany.

We have perfected a submarine kelp harvester, with a cutting device mounted between two pontoons, having one duplex horizontal cutter and two vertical duplex cutters, the propelling machinery being directly behind the cutting machine. This harvester cuts through the kelp groves a swath about sixteen feet wide and from two to ten feet below the surface of the water. The kelp grows, as a rule, in water averaging from thirty to fifty feet in depth, but we have found that by cutting five feet below the water we are able to harvest 85 per cent. of the total weight of the kelp.

The plant, when cut, is automatically gathered from the water by a process I adopted from the method I used to employ when a boy in catching eels on the Long Island shore, and by a simple device cut into six-inch lengths. The harvester, with the scows attached, has a capacity of delivering 50 tons of wet kelp per hour. This is put through a process, and when dried produces five tons of material containing over 20 per cent. potash.

We have been operating for a year, but it has not been until the Panama Canal was opened that it has been possible to make shipments around this side of the country at a profit. A consignment equal to five carloads of kelp will be delivered in New York via the canal within sixty days.

Both the Department of Agriculture and the Geological Survey at Washington have for several years been searching in their respective fields into this country's resources of potash. The establishment of a great industry on the Pacific Coast for the derivation of the chemical so important in agriculture especially would be a splendid addition to the triumphs of scientific investigation under the auspices of the Federal Government, a task which comparatively few of the people of the United States have measured as it should be measured. Nevertheless, however great a boon the triumph would mean

for lands lacking this essential to plant life, it must not be forgotten that much of the soil contains its own native potash in vast supply, and that it is only necessary to apply in proper method some substance as lime to render the native supply available for all needs.

A GOOD ROADS HINT IN THE JITNEY BUS

WHY is the jitney bus? To what will it lead? Starting a few months ago in the Far West in more or less competition with the service of traction lines, the jitney bus has moved rapidly across the country, and, appearing in different localities almost simultaneously, has begun to attract the serious attention of the managements of street railways, investors and municipal authorities alert to any possibility of increasing public revenues through the granting of public service franchises. It seems to be something more substantial than a fad. To buy and operate a single jitney bus or to adapt some other motor vehicle to its purpose calls for a certain amount of capital to be invested with no certainty of continued and increasing profit.

Doubtless many a man, impressed by the wide publicity suddenly given the jitney bus movement and having a bit of capital idle because of prevailing dullness in other lines, has made bold to venture into the new field. But that alone does not account for the situation as it has already developed.

Some automobile manufacturer, seeking, as an aggressive one must seek, a wider market for his wares, may be in the background of the advertisement of the new passenger service in cities, so gratuitously published by the press of the country, if, indeed, he has not actually made easy the starting of the service.

It might be possible for some great aggregation of capital, thoroughly convinced of the economies in consolidation and of the desirability for itself in financing such consolidation, to promote from a common center at widely separated points simultaneous inception of jitney bus services in genuine competition with existing street car systems, especially where there is well-based criticism of such service, for the purpose of depressing the market value of traction securities, making comparatively easy the absorption of the street railway lines into one control. But it is a question whether this game would be worth the candle.

Whatever the inspiration may be, it is quite evident that in some localities at least there has been a distinct demand for the jitney bus, either because of the absence of other means of quick transportation or because of inadequacy of existing means. The greater freedom of action of the self-propelled vehicle and its ability to operate easily where it would be difficult for conventional passenger service to be profitable, are certainly points in its favor, and suggest that street car companies might make no mistake in adopting and adapting the jitney bus as auxiliary to their own service, making it a feeder to their own lines, especially in suburban sections. Even in some large cities foresight in acquiring franchises covering all possible routes or wisdom in approaching the same end more directly by the acquisition into one management of many lines, has left stretches of considerable territory in which there is no such public service. In the case of suburban extension, where frequently the returns on the investment are not proportionately as great as in the city, in spite of the relatively higher rate of fares, there ought to be abundant opportunities for the utilization of the jitney as auxiliary.

This brings the thought to a wider range of use for the self-propelled vehicle in both passenger and freight service as a feeder to steam railroads. In the South, for instance, there are 93,500 miles of railroads, an average of something less than one mile for every ten square miles of territory. The average in New England is one mile of railroad for every seven square miles of territory. Since 1880 the South has built railroad mileage sufficient to bring its total to a greater aggregate length than the length of all the railroads in the country in that year. For the full development of the South its transportation facilities should be made at least to equal those of New England, which would give it

about 134,000 miles of railroad. Even with that equipment there would be vast tracts in the South without railway facilities but capable of supporting quite a dense population engaged in producing in mining, lumbering and agriculture enormous traffic for transportation companies. The interurban electric lines may be expected to accelerate the proper settlement of these tracts, but even in that event the needed facilities will not be complete and the population will be obliged to depend upon country roads. In the past ten years there has been notable activity in the South in the construction of improved highways, both trunk lines and laterals. But a vast amount of work of the kind is still to be done before there shall be an adequate system of public highways net-working the South. Nothing probably could give a greater impetus to the completion of the system than consideration of the conveniences offered by the automobile, the motor bus and the motor truck to farming communities. For, the profitable operation of such vehicles demands first-class roads. With the roads provided, the quick and reasonably cheap connection of the farmer's front gate with the steam railroad, the linking of the farm with its markets, will be afforded by the self-propelled vehicle which already is doing effective work at many points where the chance for it exists.

WOOL IN THE SOUTH.

IN spite of the fact that the number of sheep in the United States on January 1, 1914, was 1,763,000 less than the same time in 1913, the South's share in the difference being 258,000, the clip of wool in 1914, while showing a decrease of 5,483,300 pounds under the clip of 252,675,300 pounds in the whole country in 1913, was 402,950 pounds greater in the South. There was a decline of 500,000 pounds in pulled wool, so that the total wool product in the country was 290,192,000 pounds, or 5,983,300 pounds less than in 1913. The value of the scoured wool, however, was \$9,148,293 greater than the \$57,582,954 of 1913. The increase in the value of clipped wool was from \$43,785,054 to \$52,218,237 in the whole country, and from \$6,329,650 to \$7,818,351 in the South. Comparison of the clip and the value by States in the South in 1913 and 1914 is made in the following table:

States.	Raw Wool, Pounds.		Value.	
	1913.	1914.	1913.	1914.
Alabama	373,750	411,000	\$88,066	\$117,834
Arkansas	400,000	406,000	86,400	112,066
Florida	325,000	325,000	76,570	82,690
Georgia	612,500	580,000	138,548	163,560
Kentucky	3,565,000	3,643,000	853,461	1,065,741
Louisiana	490,000	560,000	115,444	100,552
Maryland	704,000	755,000	141,926	183,918
Mississippi	562,500	533,000	130,388	149,560
Missouri	7,087,500	7,179,000	1,481,288	1,737,318
North Carolina ..	562,500	550,000	123,975	155,100
Oklahoma	357,500	411,000	58,988	80,556
South Carolina ..	108,000	109,000	23,803	30,738
Tennessee	1,953,000	1,953,000	441,769	585,900
Texas	8,775,000	8,643,000	1,812,740	1,742,428
Virginia	2,002,500	1,978,000	499,524	632,960
West Virginia ..	3,162,500	3,406,000	756,470	817,440
Total	31,041,250	31,442,000	\$6,329,650	\$7,818,351
United States.....	*296,175,300	*290,192,000	\$57,582,954	\$56,731,237

One of the deductions by the National Association of Wool Manufacturers in its annual review, from which these figures are derived, is that the tendency of previous years toward mutton breeds and away from the merinos continues, especially in the middle West, where the latter are rapidly disappearing, and the association believes that if the general tendency to change to mutton breeds continues to expand, manufacturers will have difficulty in obtaining their supplies of fine wools. This is probably true, but the figures for all sheep indicate clearly that their number is not only not increasing in proportion to the increase in population in this country, but is actually decreasing. On the first of January, 1911, for instance, there were 53,633,000 sheep on our farms, but on the first of last January there were only 49,956,000, or 3,677,000 less. The decrease in the number of sheep in the four years was only greater than the decrease in the number of other food animals, the aggregate number of milch cows, other cattle, sheep and swine having decreased from 179,755,000 to 172,903,000. Meanwhile, the aggregate value of

animals increased from \$2,472,098,000 to \$3,275,880,000.

The quantity of wool clipped was greater in nine of the Southern States in 1914 than in 1913, the greatest increase in any one State being 243,500 pounds in West Virginia, but, the average price per pound ranging higher, the value of the clip increased in every one of the Southern States, the greatest increase in any one State having been \$429,688 in Texas.

Increasing value of wool and of livestock on the hoof ought to spur Southern farmers to giving more attention than ever to the raising of sheep, not only as a source of income, but as a means of adding to the fertility of their lands.

HOLDING COTTON FOR WHAT?

WITH its background of the past nine months, spot cotton at 8.90 cents a pound at New York and 8.44 cents a pound at New Orleans is one of the features of this year's remarkable situation in the cotton trade that is probably without parallel. In the first five months of the current cotton year, up to January 1, of the total estimated crop of 15,966,000 bales, 14,447,623 bales, or 87 per cent., had been ginned. But up to last Friday, in a period of more than seven months, only 12,442,377 bales of the commercial crop had come upon the market. That was a decrease of 7 per cent. under the movement into sight in the same period last season. In the meantime the exports had decreased only 20.3 per cent., instead of 50 per cent., notwithstanding the European war, and the takings by American mills had decreased 9.9 per cent., the actual decrease of the latter kind being 231,645 bales by Southern mills and 246,990 bales by mills in the rest of the country. The 1914 American cotton crop was the largest in history. Conditions of the textile industry in two or three of the leading European nations buying the raw material were not at all satisfactory from the standpoint of the growers, even before the alarm of war. Had other factors remained normal, had there been no war, the pressure of the enormous crop upon the world's markets must have inevitably brought the price of the staple down to within perhaps \$7 or \$8 of the present price per bale, and that would have meant a gross return of \$845,000,000 for the 1914 crop, or \$42,000,000 less than the returns from the 1913 crop of 14,156,000 bales. The significant fact is that quite 2,000,000 bales of the cotton ginned up to January 1 have been held from market, and that a much larger part of the total crop has been withheld. Only a sudden cessation of war could possibly reduce very materially before the oncoming of the next crop the relative volume of the withheld cotton without at the same time reducing the price. Within a few weeks it will be too late for cotton-growers to regret that in their planting they had not acted upon the strenuous suggestion that anything like a normal crop in 1915 would be likely to nullify whatever salvage had accrued from the handling of the 1914 crop in almost baffling circumstances.

Optimistic Notes Reported.

The Georgia Brick Co.'s plant at Adairsville at work again.

Tinplate plant of the N. & C. Taylor Company at Cumberland running night and day.

Byrd-Matthews Lumber Co.'s plant at Helen, Ga., to increase its daily output from 60,000 feet to 120,000 feet.

Four lead-mining companies in St. Francois county, Missouri, go upon full time instead of upon five days in the week.

Mills in Stone and Baxter counties, Arkansas, of the Chess-Wymond Stave Co. resume after six months' idleness.

Barnesville Manufacturing Co., Barnesville, W. Va., goes upon full time in the manufacture of woolen goods.

John L. Ruger Company's lumber mill at Belhaven, N. C., started up on full time.

Hydro-Electro Development in Navigable Streams*

By CONGRESSMAN WILLIAM C. ADAMSON of Georgia.

Inland navigation is very important to our people. The conformation of the mountain ranges and watersheds is such that if all the rivers were improved up to the heads of possible navigability, only short distances of overland would remain between the rivers. Over-sanguine people sometimes put the cart before the horse, and, figuring those rivers as already navigable, have planned out canals connecting them.

If we would first concentrate our energies on opening all the streams from the sea as far upstream as possible, we would find the situation greatly relieved, even if the connecting canals were never built. In this growing country, produce and commerce are expanding so rapidly that it is impossible for the railroads to transport the traffic. We are going to need navigation on every possible stream. It is no longer necessary to plead that navigation of the rivers would reduce rates on the railroads. That is true in some instances, but the fact that we need more channels of commerce is the most salient point in the case. The projects for improvement of rivers and harbors already urged would require billions of dollars to complete. Appropriations made at rare intervals, in small dribbles, are largely wasted and development is exceedingly slow. Some Congressmen are economical, and balk at river and harbor bills, especially as there are no navigable rivers in their districts. Conflicting interests object to large appropriations and denounce river and harbor bills as "pork barrels." Several times filibusters have entirely prevented the enactment of river and harbor bills.

It is growing more and more difficult each year to secure adequate appropriations for the development of the streams. There is, however, a powerful ally at hand, if we but accept the proffered aid. Science has come to our relief. The wizards who have registered such remarkable triumphs in the generation and use of electricity, whether by steam or water power, have amazed the world with their accomplishments.

Almost every navigable stream in the South is interrupted by shoals. Long reaches of navigable water are separated by a shoal on which can be constructed a dam capable of developing water-power and hydro-electricity sufficient for the miraculous development of all the immediate country around. Three-fourths of these rivers and splendid water-powers are in the South. The hydro-electricity generated, which may vary from a few kilowatts to a hundred thousand at each site, may be used for making cheap, clean and brilliant light. It constitutes the best fuel for heating our houses and cooking our food. It may be used to run electric cars throughout the country, connecting all the hamlets and villages and furnishing all the farmers with easy and rapid transit and transportation. In the West the farm fertilizer is water, and the Government has provided it with governmental agency and expense. In the South the farmer depends upon guano. The elements of that guano are nitric acid, phosphoric acid and potash. Two of those elements may be secured through the development of hydro-electricity. The \$22,000,000 a year we pay Chile for nitrate we can save at home by the electrical extraction of nitrate from the air making cyanamid. The phosphoric acid, which is so expensive to produce by the use of nitric acid, can be produced from phosphate rock, so abundant in Tennessee and Florida, much more cheaply and satisfactorily by the use of hydro-electricity in the electric furnace. Sodium nitrate is also necessary for gunpowder and various military munitions, and it is very difficult for any Government which desires to be prepared for war to keep a sufficient supply on hand, and it is very expensive.

The Solvay process for decomposing salt by electricity produces most forms of soda and bleaching powder so cheaply as to exclude all competition. The large aluminum companies have located their plants on non-navigable streams like the Little Tennessee and the Yadkin, because they were unable to capitalize under the 50-year terms prescribed by the Federal Government and other rigorous conditions sought to be enforced. The capital of these companies, if spent in the Coosa River, would have opened that river and both of its tributaries far

above Rome, or would have made the Chattahoochee navigable from Apalachicola to Gainesville. By the obstructive tactics the pretended friends, but really enemies of progress, we have been deprived of all that capital in the development of our navigable streams and much more, to say nothing of the unspeakable losses to our people through the failure to develop the uses and benefits of hydro-electricity in their midst. Civilization cannot get along without the electrical steel furnace, which produces steel of such high grade and uniform character as entirely to supplant the use of the old-fashioned and expensive crucible steel.

Time would fail to enumerate all the practical uses to which hydro-electricity might be profitably devoted, without venturing upon the speculative field as to the infinite prospects of future development. Suffice it to say, for mechanical purposes it is necessary to have cheap electricity. In Norway they make cyanamid with hydro-electricity costing as low as \$6 per horse-power that is shipped to this country by thousands of tons and we pay for it, when we have as good water-powers in this country as there are in Norway, but the private capital which would develop all of these water-powers in the navigable streams cannot do so without the consent of the Federal Government. The Federal Government has paramount right, supreme dominion over the bed of every navigable stream for the purpose of developing and maintaining navigation, but for no other purpose. It has no right outside of the bed of the stream, except the right of eminent domain if necessary to condemn and pay for any other property, but anybody who purchases or holds or constructs anything within the bed of any navigable stream does so with notice of the superior right of the Federal Government, and must vacate without compensation whenever the Federal Government wishes to assert its right. Therefore, persons, natural and artificial, who have become the riparian owners at those shoals in the navigable streams have offered to improve the navigation for the Government free of any expense to the Government in consideration of consent for the plant to be constructed. If a dam and lock which would make 25 miles of slack-water navigation would cost a million or twenty millions of dollars, private capital offers to stand that expense if the Government will consent for a dam to be constructed for the purpose of developing water-power. Navigation being the prime purpose, of course, the company constructing the dam could only expect to use the surplus water, that is, as much water as could be used without interfering with the operation of the locks and the proper level of the lake. The opportunity seemed so inviting that Congress granted its consent to a great many private companies to improve shoals at their own expense. Some few of them were built, the Government providing for supervision of the work, the level of the lake and the operation of the lock, and since 1910 limiting the tenure of the consent to 50 years. The companies, however, didn't all succeed. Many of them failed financially. Only a few large ones ever succeeded, and so far as I know, none of them have ever yet found markets for all their output, but this is owing to the uncertain condition and existing state of agitation and obstruction.

The right of the Government being for navigation only, I have always thought the right of any dam owner in any navigable stream was the same, whether he had the consent of Congress or not, because if the War Department should serve notice on a dam owner to remove his dam he would promptly file his plea and offer to put in such lock as the War Department might approve in order that the Government might utilize its right of navigation at that point in the river, and that would end the litigation; but capital doesn't wish to buy a law suit. It will not go into an enterprise which has to be initiated with the prospect of a law suit.

The Chamber of Commerce of Fayetteville, N. C., Thomas H. Sutton, secretary, will make its annual banquet on March 23 the climax of a campaign which it has been making for greater support and greater interest in the civic organizations of the community.

*From an address before the Atlanta Bar Association.

HOPEFUL FOR RIVERS AND HARBORS.

Senator Ransdell's Views on the Outcome of the Sixty-third Congress.

"As I see it, friends of waterways have no reason for discouragement in the present situation." So said United States Senator Joseph E. Ransdell, from Louisiana, president of the National Rivers and Harbors Congress, and one of the strongest believers in and advocates of the improvement of waterways in the country. "The rivers and harbors bill which has just been enacted," continued Senator Ransdell, "is a very much more comprehensive measure than is generally understood. In the first place, it provides a direct lump sum appropriation of \$25,000,000, to be expended under the direction of the Secretary of War and the supervision of the Chief of Engineers, in order to maintain existing river and harbor projects in condition to give best service and for prosecuting improvements thereon.

"It has not always been possible to expend the funds provided for river and harbor work within the year that they are appropriated, so that there is always standing to the credit of certain projects sums of money which are not immediately needed, so, in the second place, the bill authorizes the Secretary of War, upon the recommendation of the Chief of Engineers, to transfer such funds to other projects for which money is immediately needed up to a total of \$5,000,000.

"Furthermore, the sundry civil bill carries nearly \$4,000,000—\$3,982,000, to be exact—for projects which have been placed under continuing contracts. In addition, the bill authorizes the beginning of work on a number of projects which have been held in abeyance until the conditions attached to the appropriations made for them have been complied with. The amounts thus authorized are upwards of \$1,000,000, so that we have a total of between \$35,000,000 and \$36,000,000 which will be available for river and harbor work during the coming fiscal year. When we consider present financial conditions and the shortage of money for all purposes, private as well as public, this is a fairly satisfactory sum, and it is far larger than the average annual appropriations for waterways ten years or even five years ago.

"Another very important feature of the bill is that it authorizes the Chief of Engineers to make surveys of no less than 207 new projects, many of which are thought to be of very great merit. They are scattered throughout the entire country, and this provision of the bill will be especially gratifying to many people in all parts of the United States.

"The bill also provides for re-examination of several very important canals and rivers which, if thoroughly approved, would be most efficient competitors with railways and regulators of freight rates. Among these are the inland waterway from Norfolk to Beaufort Inlet, and the Coosa, Brazos, Red, Ouachita, Arkansas, Tennessee, Fox and Missouri rivers. The purpose of these examinations is to ascertain whether there should be any modification of the present plan of improvement or any abandonment of the work. There are also in the bill a number of general provisions of much value which cannot be separately described at this time.

"When it is borne in mind that the Indian appropriation bill, carrying more than \$11,000,000, and the great postoffice bill, carrying nearly \$324,000,000, were both defeated, and provision for these two departments of the Government had to be made by joint resolution extending existing appropriations for another year, it will be seen that the rivers and harbors bill has fared much better than some others.

"I wish to say also that the disaster which befell the rivers and harbors bill of 1914 was not due chiefly to the efforts of its enemies in Congress, but to a series of untoward circumstances which delayed action on the measure for several months, followed by the outbreak of the awful war in Europe, with the state of business depression produced thereby, and the decrease of national revenues due to the war, which made necessary the emergency tax of over \$100,000,000, caused the cutting of expenditures to the bone and forced a radical reduction in appropriations for rivers and harbors.

"One of the most unfortunate features in connection with the last two rivers and harbors bills is the fact that no new projects whatsoever have been provided for, although a number of very important ones, which had received the hearty approval of the Engineer Corps, were pending and ready for action. This regrettable result is due entirely to the condition of the treasury,

and in no sense to any unfriendliness to waterway improvements.

"The improvement and utilization of our waterways is of vital importance to the future of our country, and every friend of waterway improvements should do everything in his power to make it certain that at the next session of Congress there will be a real rivers and harbors bill, which will not only provide for existing projects, but for many new ones as well. It is a time not for discouragement, but for enthusiasm—a time not to relax our efforts or cease them altogether, but to gird up our loins and go forward."

For Draining the Everglades.

Preparations are being made to proceed with the contract awarded by the Commissioners of Everglades Drainage District of Florida to the Furst-Clark Construction Co., Baltimore, for the St. Lucie Canal. This contract contemplates the construction of a canal from the east shore of Lake Okechobee to the south fork of the St. Lucie River, and the widening and rectification of a portion of the river. The work will include the removal of about 20,000,000 cubic yards of earth excavation. The canal will be 24 miles long, have a bottom width of 120 feet and a depth of cut of 14 feet at the lake end, and gradually widen to 160 feet on the bottom at the river end. The greatest depth of cut will be 28 feet. The normal water section at the lake end will be 1430 square feet, and 2200 square feet at the river end. The river below the entrance of the canal has an average depth of 11 feet, with good sections and reaches. The same lends itself well to improvement.

The purpose of the canal is: provide principal unit of control plant for controlling waters of Lake Okechobee, preventing their overflow and inundating Everglades; provide main outlet for drainage of wet lands through which canal will pass; provide such navigation and other features as may be reasonably and economically harmonized with canal constructed for lake control purposes.

A dam with adjustable crest will be constructed near the lower end of the canal. By its means considerable flexibility of lake control will be possible. A lock will also be provided for harmonizing the navigation feature of the waterway. The construction of the lock and dam is not a part of the dredging contract. It is proposed to remove a sufficient amount of the top material with land excavators to clear the canal section of roots, stumps, brush and other debris so as to leave comparatively clean earth, and also to construct with the material so excavated a levee each side of the canal, beyond which the remaining material is to be pumped as excavated by a suction dredge. The contract calls for beginning excavation within three months and completion in four years from date of contract. It is practically an extension of the contract previously received by the Furst-Clark Construction Co. for the Hillsborough and North River canals, the work on which is progressing to completion. Approximately \$2,500,000 is involved in the contracts, and the improvements will reclaim about 5,500,000 acres of productive land.

The project was reported favorably in August, 1913, by the acting chief drainage engineer, F. C. Elliot, and in December of the same year by the Everglades Engineering Commission, composed of Isham Randolph, M. O. Leighton and Edmund T. Perkins. F. C. Elliot is the chief drainage engineer.

Chattanooga Gas & Coal Products Co.

Construction is progressing on the plant (heretofore detailed) of the Chattanooga Gas & Coal Products Co. at Alton Park, near Chattanooga. The estimated cost is \$450,000, and the daily capacity will be 500 tons of coal, producing 3,000,000 cubic feet of gas, 400 tons of coke, 4000 gallons of tar, 11,000 pounds of sulphate of ammonia, benzol, creosote, etc. The Roberts type of coke oven will be used, this oven being furnished by the American Coal & By-Product Coke Co. of Chicago. The Roberts oven is said to be the only flawless type marketed, and is claimed to coke coal in less time than any other design of oven, besides producing coke for metallurgical purposes from coals heretofore technically known as non-coking. The Chattanooga Gas Co. will buy 200,000 feet of gas daily from the new plant, and is preparing to increase its sale of gas for manufacturing in

the Chattanooga district. About four miles of mains will be used to pipe gas from the ovens to the distributing system of the Chattanooga Gas Co., and the first order for pipe, awarded to the James Supply Co. of Chattanooga, calls for 22,000 feet of piping.

The Chattanooga Gas & Coal Products Co.'s contracts for construction and equipment include the following: West Gas Construction Co., Fort Wayne, Ind., by-product equipment, indirect process for ammonia recovery; Kerr-Murray Company, Chicago, gasholder; Wellman-Seaver-Morgan Company, Cleveland, O., coke-pushing and coal-leveling machinery and lorry cars; R. H. Beaumont & Co., Philadelphia, coal and coke conveying, screening and grinding machinery; American Refractories Co., Chicago, silica brick; Smallman & Co., Chattanooga, concrete work for ovens, etc.; Converse Bridge Co., Chattanooga, steel construction work; Casey-Hedges Company, Chattanooga, storage and filtering plants.

Bringing Better Crops.

Substantial results are shown by the annual report of the agricultural agent of Southern Railway Co. and associated companies for the year 1914. During the year the field agents of the companies gave advice to a total of about 100,000 farmers. They received detailed reports from 3512 farmers, covering 33,466 acres in cotton, 24,287 acres in corn and 11,383 acres in miscellaneous crops.

The average yield of cotton per acre on fields cultivated in accordance with their advice was 1255 pounds of seed cotton, as compared with the average of 513 pounds per acre in fields where their advice was not followed. The average yield of corn per acre in fields grown in accordance with their advice was 40½ bushels, as compared with 18½ bushels per acre in fields where their advice was not followed. Equally good results were obtained with other crops.

A striking feature of the report is the good showing made in boll-weevil territory, where many farmers, notwithstanding the presence of the weevil in their fields, averaged a bale or more of cotton per acre. The agricultural development work of the companies is carried on in co-operation with the United States Government and the agricultural agents of the States and counties. The services of the agricultural agents of the companies are free to all farmers along their lines wishing to avail themselves of their advice. The work heretofore done by the companies for the development of livestock, dairying and poultry raising along their lines has been consolidated with the general agricultural work under the direction of the industrial and agricultural commissioner of the companies, and plans have been adopted which it is believed will make all of the agricultural development work of the companies even more efficient in the future than it has been in the past.

Looking for a Secretary.

B. R. Stone, temporary secretary of the Reidsville Commercial and Agricultural Association, just chartered, writes to the MANUFACTURERS RECORD that the organization looks to the bringing of farmers and business men together and to the building up of the back-country for the purpose of creating new markets. The association is on the lookout for a permanent secretary. Reidsville is the principal town of Rockingham county, North Carolina, in the heart of the Piedmont section of that State, and on the main line of the Southern Railway between Danville, Va., and Greensboro, N. C. It has several manufacturing plants, three banks, public library, schools and churches. Its population is about 12,000.

Contracts for Fuller's-Earth Plant.

All contracts have been awarded for rebuilding and equipping the fuller's-earth mining and handling plant recently destroyed by fire at Quincy, Fla. This is the plant of the Floridin Company, offices at Warren, Pa., which will erect buildings as follows: Mill, 110x60 feet, of wood; drying, 125x50 feet, of steel; power, 45x35 feet, of brick. The plant will cost \$60,000, and will be completed in June, with a daily capacity of 100 tons.

Building Activity at Louisville

[Special Correspondence Manufacturers Record.]

Louisville, Ky., March 15.

Just being occupied in Louisville, Ky., are a number of new buildings which have been erected at a cost of \$350,000, while anywhere from 50 per cent. completed to definitely announced projects on hand and certain to be put into execution during the next few months are building operations running well on toward \$2,000,000 additional. In addition, there are a number of named projects for which no definite plans have been published, while in every architect's office there are various undertakings in progress which, it is said, are to be made known in the near future. Permits issued by the city building inspector for the months of December, January and February amounted to \$750,070, and these included scarcely any of the projects referred to, besides representing an increase over the same period for previous years.

Of the new work, no single structure passes six figures, but the others are numerous and insure that the building contractors of the section should have a good year and that the material men and equipment houses who supply their wants can count on a considerable amount of business, even if there should none of the more elaborate projects which are reputed to be almost ready to develop into definite form in the next few months. Coming of open weather earlier than ordinarily has made it possible to get an early start on most operations, and much of the excavating work has been completed or well begun, without a suggestion of bad weather to interfere with it.

Probably to be regarded as the largest series of undertakings are those which the Board of Education of the city has in hand. There are seven new school buildings under way and destined to be completed by the time school reopens in the fall. These are being built out of the proceeds of a \$1,000,000 bond issue which was voted by the people, and which has been realized on by the board. The largest of these buildings is the new male high school, which represents an outlay of \$250,000, the total cost of all the work which has been contracted for running to \$722,260. The remainder of the million goes for equipment and for purchase of playgrounds and lots adjoining the schools. All the seven buildings are of brick and concrete construction, and fireproof.

The high-school building, J. Earl Henry of the Board of Education, architect, and Bailey & Koerner, general contractors, is about half completed, a portion of the structure having been roofed over. The board has recently received bids for the equipment, including everything from the shape of gymnasium devices to desks for the boys, laboratory equipment, etc. Bids on equipment for the other schools have either been received or accepted, though the work will go on for several months yet before they are completed. Stephen Jones, business director of the Board of Education, has attended to this work. The high-school building will be faced with a rough texture red brick which has been delivered to the contractor.

The rest of the school buildings are all ward schools, and are situated in various parts of the city. They are all to be faced in brick, and are from 50 per cent. completed to past the roofing stage. The West Market street school is being built at a cost of \$75,000 by the General Construction Co., according to the plans of J. Earl Henry. The George D. Prentice school is a remodeling job, and consists of thorough renovation of the old University building on 6th street near Chestnut street. This will cost \$30,000. A new school is soon to be contracted for at an estimated cost of \$75,000, the William R. Belknap school, to stand on Douglas boulevard, the plans for which are being prepared by Mr. Henry.

Other schools include the Emmet Field school, an eight-room one-story structure in Crescent Hill, to be completed by the middle of the summer, the work of Mr. Henry, and being constructed by the George H. Rommel Company; the J. Stoddard Johnston school, a two-story structure on South Preston street, which is costing \$94,000, and for which Joseph & Joseph were the architects and the L. W. Hancock Company the contractor; the

Twenty-fifth and A street school, costing \$98,000, Ward & Glossup, architects, and the Alfred Struck Company, contractor, a 12-room school, and the Fortieth and Garland street school, an eight-room structure costing \$92,000, John Bacon Hutchings & Son, architects, and the George R. Rommel Company, contractor.

John Bacon Hutchings & Son are the architects who have in hand the plans for the new Y. W. C. A. building, for which some time ago a fund of \$300,000 was raised. Out of this fund the association has purchased a lot at 2d street and Broadway at a cost said to have been in the neighborhood of \$90,000.

It is announced also that the project for an addition to the Tyler Hotel at 3d and Jefferson streets has assumed a definite form. Plans which have been sketched by D. X. Murphy & Bro. have been approved in general terms, and work is to begin as soon as possible. The addition to the building will include two additional stories on the top of the present eight-story building and an addition of ten stories fronting 30 feet on Jefferson street, which will raise the capacity of the hotel to 250 rooms. Plans considered heretofore provided for four stories on the top of the present eight and twelve-story addition. Cost of the projected improvement will run to approximately \$175,000, and the improvements are to be completed in nine months after they have been begun. The addition will be of reinforced concrete construction, with face brick corresponding to the original building, which was put up with the expectation of increasing its height.

Next in importance is the new work at the Bourbon Stockyards. Just completed is the Stockyards Exchange, a four-story structure of reinforced concrete and face brick and terra-cotta at Main and Johnson streets, with a court and sheds of similar construction for sales pens. This building was erected by the Paradis Company at a cost of about \$100,000, according to plans prepared by D. X. Murphy & Bro., while the Biome-Sinek Company of Chicago is now constructing a large expanse of sheep and cattle pens and a 50-foot loading platform beside the tracks of the Louisville & Nashville Railroad, all of reinforced concrete, which will represent an outlay of \$150,000 when completed. These pens, for which plans were prepared by D. X. Murphy & Bro., correspond to similar pens erected some six years ago, both sets replacing old wooden pens which were destroyed in fires. The new section of pens is both one and two stories, all under concrete roof, as is the case with the loading platform. The work is in the form of an irregular triangle, nearly 1200 feet long and about 500 feet across the base. These pens are to be finished in May.

Another considerable building operation is that represented by the Colored Knights of Pythias hall, on West Walnut street, which is to cost \$125,000. The Falls City Construction Co., Louisville, is the contractor. Plans, prepared by Henry Wolters, provide for a building seven stories in height, with a roof garden, to be built of reinforced concrete and faced with brick and Bedford stone. It will contain five stores, a motion-picture theater auditorium, three lodgerooms and 100 guestrooms for the hotel which is to occupy a part of the building. The Kentucky Pythian Industrial Association, colored, is owner of the property. Fireproof construction throughout is the rule.

The Bernheim building, 636 and 638 S. 4th street, is under course of construction, and will be four stories in height, of reinforced concrete construction, with steel columns and girders, fireproof throughout. The plans are by Joseph & Joseph, and provide for a series of retail storerooms from the first floor up. The building will front 60 feet on the street and run 145 feet to an alley, a central corridor on each floor opening onto the storerooms, which will all have show windows on the corridors. A. Markham & Co. have the general contract, which is to be completed by the first of September. The building will be faced with terra-cotta; corridor floors to be laid in marble tile. Cost of this building, equipped, is to run to \$100,000.

One other building in prospect is the branch assembling and shipping plant of the Ford Motor Co. of Detroit, which, it is estimated in Louisville, will run to considerably more than \$100,000. It will occupy a

site at the junction of the Louisville & Nashville and the Southern railroads, with switches, etc., and will be the distributing station for portions of five States, with a capacity for handling 10,000 of the cars a year. Plans, prepared at the Detroit office, call for a building of four stories, 240x100 feet. Bids are in for most of the construction work; equipment will be provided for through the Detroit office.

On Market street, between Brook and Floyd, the J. F. Kurpees Paint Co. is to have an elaborately equipped warehouse, factory and office building, fronting 45 feet on Market street and running 204 feet back, five stories and basement. Joseph & Joseph prepared the plans, and the contract is being executed by the Alfred Struck Company, excavation having been completed and the contractor having begun pouring concrete for the reinforced concrete building. Fireproof construction, with fireproof doors, etc., between the grinding and mixing departments and the rest of the building, are specified. Brick and stone will be the facing material.

Another \$75,000 building for which contracts are soon to be let is that which will be used as headquarters for the Southern Methodist Board of Church Extension, to be located at 1115 S. 4th street, a residence on which site has been razed. Plans for this building have been prepared by Capt. Brinton B. Davis, and provide for a fireproof steel and concrete structure of two stories and basement, of Ionic design. It will be faced with Bedford or Bowling Green stone, will be heated by air pressure system, contain an electric elevator, and marble and tile will be used generously and the floors will be of cork.

Just completed and occupied, and constructed of Bowling Green stone and concrete, is the new home of the German Bank at 5th and Market streets. This was constructed by the Frey Planing Mill Co. at a cost of about \$100,000, according to plans of the Murphys, which are of the Italian Renaissance order. Extensive use of bronze was made in this building, which is one of the best of its type in this section of the country.

The Suburban Lodge, being built by the Suburban Lodge of Masons, is under course of construction at 3d street and Central avenue, and will be of brick, containing five stores on the ground floor. Joseph & Joseph are architects for this work, and the Lichtefeld-Metzner Company the contractor, while the same architects have also made the plans and A. Markham & Co. have the contract for the child's pavilion for the Board of Tuberculosis Hospital on Waverley Hills. This is to cost about \$12,000, and will bring the investment in that equipment to several hundred thousand dollars. The pavilion, as the rest of the buildings, will be of stucco over metal lath. The Suburban Lodge building will represent an outlay of about \$25,000.

In the way of new factory buildings is the plant of the Axton-Fisher Tobacco Co. and the Columbia Sanitary Manufacturing Co. The former has just been occupied, having been put up by George Skelton on plans prepared by Val Collins. It is five stories in height, of reinforced concrete construction, and cost approximately \$50,000. The Columbia Sanitary plant, which is to manufacture lavatory and bath equipment, is an offshoot of Laib Bros. and was planned by the company's own architects and erected by the company. It is under roof, and consists of an enameling department of 90x100 feet and a foundry department 200x100, and is of brick and steel construction. The site includes eight acres, and offices and additions will come later. It is expected that the plant will be occupied and in operation by the middle of April or the first part of May. The company, which was recently organized, has \$100,000 capital.

TO DOUBLE \$3,000,000 REFINERY.

Standard Oil Co.'s Announcement of Plans for Baton Rouge Facilities.

[Special Dispatch to Manufacturers Record.]

New Orleans, La., March 16.

That the Standard Oil Co. will double its \$3,000,000 refinery at Baton Rouge is announced by General Manager D. R. Weller. The company has 54 stills, and it is planned to add 42 more, of steel construction already ordered. Work will begin immediately, employing 1000 men. Three or four years will be required to complete these extensions.

Southern Building in February.

The following figures, as compiled from reports from representative cities, present a brief summary of Southern and Southwestern building operations during February: In Richmond, Va., a total of 50 permits was issued for new construction, representing a value of \$239,936, and 44 permits for alterations and repairs to cost \$19,248. As compared with February, 1914, these figures show an increase of \$20,645 for new construction and a decrease of \$32,028 for alterations and repairs. A total of 53 permits was issued in Norfolk, representing a cost of construction of \$172,730. As compared with the corresponding month last year, these figures show an increase of six in the number of permits and \$75,895 in the cost of construction. Permits were issued in Danville, Va., for construction to cost \$33,370. The cost of construction for which permits were issued in Charlotte, N. C., during the month was estimated at \$48,650, a decrease of about \$70,000 as compared with February, 1914. In Winston-Salem, N. C., a total of 39 permits was issued, representing a cost of construction of \$23,524. As compared with the corresponding month last year these figures show an increase of 15 in the number of permits and about \$3000 in the cost of construction. Eleven permits were issued in Greensboro, N. C., during February, representing a cost of construction of \$22,800. A total of 14 permits was issued in Columbia, S. C., representing a cost of construction of \$32,887, and 40 permits for repairs to cost \$3681. The cost of construction for which permits were issued in Birmingham, Ala., was estimated at \$136,710, covering 264 permits. As compared with January these figures show an increase of \$72,178. A total of 53 permits was issued in Macon, Ga., during the month, representing a cost of construction of \$14,634. In Jacksonville, Fla., a total of 77 permits was issued, including alterations and repairs, the aggregate cost of all improvements being estimated at \$65,591. Ninety-five permits were issued in Tampa, Fla., representing a cost of construction, including alterations and repairs, of \$58,055. Permits issued in Nashville, Tenn., numbered 263, representing a cost of construction of \$65,705, as against 116 permits issued in January, representing a cost of construction of \$56,037. A total of 142 permits was issued in Louisville, Ky., representing a cost of construction of \$283,220. As compared with February, 1914, these figures show an increase of \$120,000. The value of operations in Lake Charles, La., is estimated to exceed \$26,000, and, with the cost of construction in the suburbs added, will reach a total of \$35,000. The cost of construction for which permits were issued in Galveston, Tex., during the month was estimated at \$281,477, covering a total of 179 permits. Permits were issued in Beaumont for construction estimated to cost \$70,000, an increase of about \$17,000 as compared with February, 1914. The value of operations in progress at Beaumont is estimated at \$320,550. A total of 13 permits was issued in Waco, Tex., representing a cost of construction of \$24,951. As compared with January, these figures show an increase of \$5246, but a large decrease as compared with February, 1914. Permits were issued in Tulsa, Okla., for construction estimated to cost \$60,133, and in Oklahoma City \$42,750. Figures for the latter city show an increase of about \$30,000 as compared with February, 1914. The cost of construction for which permits were issued in Huntington, W. Va., was estimated at \$48,625, an increase of \$17,878 as compared with the corresponding month last year. Permits were issued in the District of Columbia for new construction to cost \$803,060, and for repairs to cost \$87,773. Brick buildings numbered 103 and frame structures 11. Operations by sections were as follows: County, buildings \$358,350, repairs \$9183; northwest, buildings \$413,510, repairs \$68,753; northeast, buildings \$4850, repairs \$3290; southeast, buildings none, repairs \$5585; southwest, buildings \$26,350, repairs \$962. The cost of new improvements for which permits were issued in Baltimore during the month was estimated at \$1,312,126, alterations \$78,000 and additions \$72,237, making a total of \$1,462,363.

Novel Plan in Church Financing.

The First Methodist Church of Troup, Tex., has adopted rather a novel plan to finance the completion and equipping of its building, according to a circular sent to the MANUFACTURERS RECORD by the pastor, the

Rev. Thos. R. Morehead. All the steel, brick and concrete work has been completed and the roof, and the value of the property is placed at \$18,000. To meet the expenses of rounding out the work the church, which is a chartered corporation, proposes to sell privately \$8000 of 20-year \$100 bonds, bearing 6 per cent. interest.

TO ENLARGE STEAMSHIP BUSINESS.

Seeberg Line, Operating from Mobile Throughout the Gulf, Gets New Capital.

H. M. Byllesby & Co. of Chicago, who are interested in electric light and power properties in Mobile and other cities of the South and Southwest, have, according to an announcement at Mobile, acquired a large interest in the Seeberg Steamship Line, which operates vessels between that port and Jamaica, Trinidad, Barbados and other islands of the West Indies, Colon, Cartagena, La Guaira and elsewhere in Central and South America.

H. M. Byllesby is quoted as saying that the fleet of steamers will be increased both by charters and purchases and the business will be extended. The capital stock of the company will be increased as may be necessary from the present figure of \$150,000 to \$1,500,000. Every endeavor is to be made to further develop trade with points in Latin America.

The present officers of the company are H. F. Kerr, president and general manager; H. T. Inge, vice-president; V. S. Hurlbert, traffic manager and treasurer, all at Mobile. It is stated that Mr. Kerr will continue as president and general manager, but that Mr. Inge will be succeeded as vice-president by Theodore K. Jackson, who is president of the Mobile Electric Co., in which Byllesby & Co. are interested. A. B. Clegg will become assistant to the general manager of the steamship company, the general offices of which are in the City Bank building, and they will be continued there.

Improving Building Contracts.

Word has been received by J. M. Vollmer, secretary of the National Association of Builders' Exchanges, Louisville, Ky., that at the Builders' Exchange, Philadelphia, March 8 the joint committee of the American Institute of Architects and the National Association of Builders' Exchanges ratified the contract documents that have been considered by these two organizations for the last two years. President Lewman stated that he had officially signed, approving the architects' new form of contract, and that it was much fairer to building interests than the previous draft, and was all that could possibly be expected at this time in the way of eliminating drastic arbitrary powers that existed in the documents governing building construction.

A little over two years ago a resolution was passed by the Builders' Exchange of Louisville carrying with it a recommendation for improvement in contract documents. This resolution was endorsed by the various national organizations connected with building and interested in financial ways, such as credit men's association, bonding companies, etc. Co-operation was heartily tendered by all of these organizations, and at the Washington (D. C.) convention held in 1913 the National Association of Builders' Exchanges started a campaign for the adoption of the recommendations.

A series of meetings have been held with the American Institute of Architects, and at the National Association convention held in Columbus, O., January 26, 27 and 28, 1915, a tentative form was submitted by the architects to the builders. Several important recommendations were offered by the builders and were submitted to the joint committee at their meeting held in Philadelphia, as above stated. These recommendations are now incorporated in the new form. Just as soon as the new documents are printed they will be promulgated for general use.

This is the most important step taken by builders in a great many years, says Mr. Vollmer, and will be a great benefit to owners and investors and will establish the building industry upon an ethical plane. It secures for all concerned a more reliable and better-managed method of doing business. The new documents provide for arbitration of all matters in dispute and make many other changes that have heretofore perceptibly increased the cost of erecting buildings.

Bank Reports.

The First National Bank of Birmingham, Ala., reports under date of March 4 total resources of \$13,845,723, which includes loans and discounts, \$9,012,215; cash, \$3,849,304; United States bonds, \$1,500,000; Alabama State bonds, \$285,500; other stocks and bonds, \$833,167. The deposits of the bank are \$10,814,242; capital is \$1,500,000, and surplus and profits, \$1,691,678. J. H. Barr is chairman; Oscar Wells, president; J. H. Woodward and J. K. Fleming, vice-presidents; Thomas Hopkins, cashier; F. S. Foster and Thos. Bowron, assistant cashiers; J. E. Ozburn, secretary savings department, and J. L. Cross, auditor.

The First National Bank of Richmond reports as of March 4 total resources of \$19,053,794, which includes loans and discounts, \$12,272,753; cash and due from banks, \$4,112,811; United States bonds, \$1,885,500; other stocks and bonds, \$706,924. Individual deposits amounted to \$8,721,644; due to banks, \$3,970,307; total deposits, \$12,838,641. Capital is \$2,000,000; surplus, \$1,000,000; undivided profits, \$177,857. John B. Purcell is president; John M. Miller, Jr., vice-president, and W. M. Addison, cashier.

The National Exchange Bank of Baltimore reports as of March 4 total resources \$8,949,915, which includes loans and discounts, \$4,803,795; cash and due from reserve agents, \$1,643,722; United States bonds, \$1,221,500; other bonds and investments, \$623,342; due from banks, \$324,163. Deposits amounted to \$5,293,119; United States deposits, \$217,854; capital stock, \$1,000,000; new capital account, \$70,400; surplus, \$600,000; new surplus account, \$35,200; undivided profits, \$141,083. Waldo Newcomer is president; Summerfield Baldwin, vice-president, and R. Vinton Lansdale, cashier.

The Du Ponts in Virginia.

Referring to the big plant which the E. I. du Pont de Nemours Powder Co. of Wilmington, Del., is building at City Point, on land purchased three years ago at the confluence of the James and Appomattox rivers, some miles below Petersburg, Va., the Index-Appeal of Petersburg states in part as follows:

"The company owns 2000 acres of land, on which it is erecting buildings of various kinds and sizes. One of the most conspicuous of the many buildings is the great filtration plant, with its immense iron tanks, to which are fitted pipes for distributing water through the grounds. The water is taken from the main channel of James River. It is forced up by powerful pumps on the river banks into the filters. The company also has an artesian well yielding a generous flow of excellent water. Another pumping station is being erected on the Appomattox River. This water will be for fire protection and flushing pipes.

"The company has completed the first set of buildings for the manufacture of explosives. These form the first unit. The manufacture of gun cotton has commenced. Across the Norfolk & Western Railway from the plant is the du Pont Hotel and a village of something like 200 cottages, recently erected for the workmen. The contractor has engaged to erect 100 more of these cottages. The rooms are small, but each building has modern conveniences. They are for the skilled workmen employed in the manufacture of explosives, who will occupy them with their families. No estimate has been made as to the number of employes who will have steady work at the plant after its completion, but it will be large."

New Type of Cotton Compress.

The Standard Cotton Compress Corporation, H. K. Milner, president, Birmingham, is preparing to market its improved cotton compress. This press aims to reduce bales to a standard size and effect a saving of 40 per cent. in ship capacity. It presses from three sides, and requires only 500 tons of pressure, each bale being 24x24x45 inches. It is not intended for use at gins, but is to compress the old bales into a size suitable for handling, being stated that its bales will load 144 to a 36-foot car. One thousand bales of cotton pressed by this compress were shipped from Mobile last week in the steamship Albanian. It is said this is the first shipment of cotton baled with the Standard machine, and that it was only possible because of the compact bale. J. E. Luce of Connecticut invented the equipment to be introduced by the Standard Cotton Compress Corporation.

Maintenance of Highways*

By MAJ. W. W. CROSBY, Consulting Engineer, Baltimore.

What one of you would build an expensive house, barn, stable or store and proceed to use it, with the expectation that you would not have to paint it occasionally, nor mend its roof, nor, in fact, make a good many repairs to it of more or less minor nature from time to time? Even if you built a cheap structure at the lowest possible first cost, such as a cornhouse, would you not expect to have to repair or renew it occasionally, and at a probably greater annual expense for such repairs and renewals than if a more substantial and expensive structure had been built in the first place? Then why should so many people expect a roadway or pavement, no matter of what type or of what first cost in construction, to take care of itself under traffic and with the traffic or use of the highway constantly increasing as it is from year to year? And yet is not this too often the situation?

A great deal of money is raised by direct taxation or by bond issues, and a road is built which is apparently just what is wanted for the comfort and convenience of the community. Being in most cases better when first completed than the older highways near it, it, in many cases, draws travel from them, and the amount of traffic over it thus becomes greater than ever before. Then, irrational as it may seem in a majority of cases, this splendid new roadway, with its heavier traffic is absolutely left to shift for itself, while the attention of the road authorities is turned away and concentrated on some other new piece of construction.

The result is, of course, what might be expected. In a short time little defects appear, and once started, these rapidly grow serious. If the neglect continues it may be but a short while before the road surface is entirely gone to pieces and complaints concerning it begin to be heard. If the neglect continues further, the reconstruction of the road comes to be demanded. If some, but still insufficient, attention is paid to the complaints and repairs are made to some extent, but inadequately, then the size of the repair bill soon becomes an object of criticism. Generally about this time criticisms of the original construction begin to make themselves heard, and the majority of those interested perhaps come to believe that the fault was with the way the road was originally built rather than with anything else. As a matter of fact, the probabilities are that the construction was too good and too expensive rather than too poor and too cheap for what the conditions actually demanded. This is the history of most of the road construction in this country, strange as it may seem. The fault for the deterioration of the road, in 99 cases out of 100, lies with the lack of proper maintenance accorded the newly-completed work.

The importance of proper maintenance cannot be over-estimated. It is beginning to be appreciated in this country. In the older countries of Europe, especially those which enjoy a reputation for having good roads, the importance of maintenance is fully appreciated, and it is upon the careful and efficient maintenance of their roads that the reputation referred to rests. I, with a number of other American engineers, have made several trips to England, France, Italy, Switzerland, Germany, Belgium, etc., inspired with a lively curiosity as to why the roads of those countries have so often been referred to by travelers from this country of ours as so much better than our roads. We dug into their roads, we examined their construction and we asked all sorts of questions of the road authorities in our search for the reason. Among us investigators there never has been but one answer suggested as the result of our searches, and that answer has been unanimously agreed to. It was, and is, that the apparent superiority of the foreign roads was due simply and solely to the better maintenance accorded them. There can be no question but what our construction when newly completed is in every way equal to or better than the foreign construction; that for the first few months our new roadways are equally as good or better than the foreign roads, but that then ours begin to drop behind, and at the end of a relatively short period are, as a rule, far inferior to the foreign roads, simply because the foreign road authorities keep their roads continuously as good as when first completed, while ours are allowed to wear and deteriorate

and are only intermittently, if at all, repaired and restored. You will understand that it is not possible for me here to go into every little detail concerning roads and pavements, and that my remarks just made as to the comparative quality of the roads and pavements here and abroad must be taken as general remarks, and not beyond dispute perhaps in certain specific cases. They are, however, safely correct in general.

It seems somewhat strange in this country, where pursuit of the dollar is supposed to be so general, that the financial extravagance of the neglect of proper maintenance has not attracted more attention. It is a well-known fact, or it should be, because it has been proved perfectly time and time again in other countries, that the neglect of maintenance increases the amount of deterioration out of all proportion to the time involved, and hence the cost of repair is correspondingly increased relatively, i. e., if a newly constructed road unmaintained will require \$100 worth of repairs at the end of the first year it will require not twice that amount at the end of the second year, but more than twice that amount, and not three times that amount at the end of the third year, or \$300, but more likely \$1000, or even more, and at the end of five years the bill for putting it back in good condition would not be \$500, but far more likely \$2500. On the other hand, if \$100 would have put it back in good condition at the end of the first year, and this \$100 were properly expended on the road to put it in first-class condition, then only another \$100 would have been required at the end of the second year, so that at the end of five years \$500 would have been spent instead of the \$2500 or more required by the other method of neglect.

There is no question in the world but what the same system of constant, watchful care over the roadbed, as adopted by the railroads, is the most economical and most satisfactory for adoption in the case of highways.

Where maintenance of highways has been attempted to some degree, two schemes have been quite generally adopted, and probably the bulk of the maintenance so far accorded highways in this country has been done under one or the other of these schemes. One was, and is, to assign for maintenance a more or less definite section of a public road to some individual. The individual is credited with a limited fund for his work, and, except possibly for some exceptions, when orders are issued in some specific cases from the central road authority, is left to his own devices for performing the work for selecting the time for its performances, and especially for the quality of it. The result has, in the majority of cases, proved a failure.

The other system referred to of so-called "maintenance" is the appointment of an individual for a considerable section of the highways in a portion of the territory covered by the central authorities, and the placing to the credit of this individual of a limited, but often fairly large, sum (a portion of the general road funds) for the purpose of carrying on repairs to the roads in his section. Sometimes this individual himself receives no salary, or at least only a nominal one, for his services. In this case, the objections above stated under the other system as to the selection of the individual apply with equal force. In other cases the district or sectional authority is paid a sufficient salary for the time and services required of it. Even in the event of the selection of the proper man for the work and the payment to him of a proper salary for his work, the conduct of the work is in most cases uneconomical, inefficient and unsatisfactory, because the usual procedure is to get together a gang of men and teams and to start out over the roads of the section either before the time for farm work began in the spring or after the harvest in the fall, and taking the roads consecutively, to attempt to do all the work for the year at one time, and that time a short time. The rest of the year the roads get no attention at all. The repairs are intermittent and irregular, instead of constant, regular and careful.

Now, I am going to attempt to give the answer I have promised to the question I put before you earlier, which in effect was "Why has the maintenance of our roads been neglected and inferior to that of other countries, even in those cases where we do not admit the populations are of as high a character as America?"

In my judgment, the answer is entirely a natural one, and it is that in this country road construction has been

allowed or encouraged to interfere with and prevent proper road maintenance. You will agree that in any new country the construction of roads of some kind or another is one of the first necessities, and of absorbing importance. In a country as vast as this it has been impossible, of course, to construct all the roads demanded as fast as they were needed, and again it has been impossible to supplant one form of construction with another more suitable for the rapidly-increasing traffic when the need of the new construction or reconstruction was evident. Consequently the road authorities, with the limited road funds provided, have been obliged to devote their energies largely to completing new pieces of road construction, and to neglect, to some extent at least, the maintenance of the earlier constructed pieces. Further, the vast difference between the unimproved paths, which had developed into roads simply through the amount of traffic over old trails, and the improved roads, even though the latter had been unrepaired and neglected for several years, and had fallen into what we would nowadays consider a deplorable condition, was so great that the public demand was for attention to further construction rather than to restoring the deteriorated earlier construction.

With the advent of the modern road necessary for new traffic conditions, and the realization of its high first cost, the financial instinct of the American people has seemed to wake up to the desirability of securing as much good as possible from the initial outlay, and to the only opportunity offered for securing the most good, i. e., through the proper maintenance of the new construction. The subject of maintenance is therefore beginning to be discussed on a par with the subject of construction. As a matter of fact, construction itself is generally subordinate to maintenance. Maintenance needs construction for its being, i. e., a thing cannot be maintained until it has been constructed, but if a thing is all construction and no maintenance, it would be indigestible. The decisions as to performance in construction are really based on maintenance considerations.

Construction problems undoubtedly will be presented for solution and discussion more or less intermittently for years to come, as changes in traffic occur and as the knowledge of the science of road building develops. Maintenance problems should and will be continuously discussed for an indefinite future. They are affected by traffic conditions, by new solutions of construction problems, and by changes in social conditions. Their importance is increasing, and also the general appreciation of their importance. For the next few years at least this appreciation cannot increase and extend too widely, for we are starting behind where we should be in the matter.

Good Roads and Streets

SOUTHERN HIGHWAY ACTIVITIES.

Details of Week's Progress in Improvements in City and Country.

Further details of road and street undertakings and bond issues mentioned below are given under the headings Construction Department and New Securities, published elsewhere in this issue.

The MANUFACTURERS RECORD invites from its readers information about road and street work projected or under way, photographs of good roads and discussions of matters pertaining to the betterment of the highways of the South.

Bonds Voted.

Bradentown, Fla.—Manatee County Sarasota-Venice Road and Bridge District voted \$250,000 bonds for roads and bridges.

Bryson City, N. C.—Swain county will issue \$100,000 bonds for road construction.

Chester, S. C.—Chester county will issue \$18,000 bonds to improve roads, etc.

Greenville, S. C.—City voted \$125,000 bonds to improve streets.

Jennings, La.—City voted \$75,000 bonds to macadamize streets.

Macon, Ga.—City voted \$120,000 bonds to pave streets.

Pittsboro, N. C.—Chatham county, Center township, voted \$50,000 bonds to construct roads.

*From an address before Southern Appalachian Good Roads Association by Maj. W. W. Crosby, Consulting Engineer.

Taylorsville, N. C.—Alexander county voted \$170,000 bonds to construct roads.

Thibodeaux, La.—Terrebonne Parish Police Jury authorized \$105,000 bonds to gravel roads.

Bonds to Be Voted.

Brooksville, Ky.—Bracken county votes June 15 on \$400,000 bonds to construct roads.

Fort Worth, Tex.—Tarrant county votes April 6 on \$200,000 bonds to construct roads.

Port Lavaca, Tex.—Calhoun County Road District No. 2 votes April 10 on \$35,000 bonds to construct roads.

Hickman, Ky.—Fulton county votes May 22 on \$300,000 bonds to construct 212 miles of gravel roads.

Tompkinsville, Ky.—Monroe county votes May 15 on \$100,000 bonds to construct roads.

Thibodeaux, La.—Lafourche Parish Road District No. 2 votes April 22 on \$80,000 bonds to improve road.

Contracts Awarded.

Baltimore, Md.—City awarded \$94,356 paving contract; 49,100 square yards sheet asphalt, 6800 square yards vitrified block and 1000 square yards of granite block.

Dalton, Ga.—City awarded \$1230 contract to pave and repair portions of certain streets.

Durant, Okla.—City let \$23,000 contract for macadam paving, with curb and gutter.

Franklin, Tex.—Robertson County Road District No. 5 awarded contract to construct 50 miles of sand-clay road; \$100,000 available.

Giddings, Tex.—City awarded contract to gravel 15 blocks of streets.

Passagrille, Fla.—City awarded contract to construct one mile of sidewalk, etc.

Wilmington, N. C.—New Hanover county let \$33,440 contract to C. R. Humphreys for 7½ miles of road construction.

Contracts to Be Awarded.

Aiken, S. C.—Aiken county receives bids until April 2 to grade and surface with sand-clay 11½ miles of road; 27,500 cubic yards of excavation and 18,000 cubic yards of sand-clay surfacing.

Covington, La.—State invites bids until March 20 to construct 26 miles of main public highway.

Cumberland, Md.—City asks bids until April 5 for 57,000 square yards brick paving on concrete base, requiring 2,500,000 bricks.

Dunbar, W. Va.—Dunbar Land Co., Charleston, W. Va., will construct six miles of sidewalks.

Hastings, Fla.—City will grade, curb and pave streets with vitrified brick; about 5308.2 square yards of paving.

Holly Springs, Miss.—City will pave 1¼ miles of streets; \$15,000 available.

Kountze, Tex.—Hardin County Road District No. 1 will build 35 or 40 miles of road.

Louisville, Ky.—City receives bids until March 25 to construct 7200 yards of concrete sidewalks; estimated cost \$8600.

Marshall, Tex.—Harrison County Road District No. 1 asks bids until April 6 to construct about 20 miles of graveled and macadam highway.

Meridian, Miss.—Lauderdale county will construct six or eight miles of asphalt macadam roads; \$50,000 available.

Richmond, Va.—Henrico county receives bids until March 26 to grade, drain and improve 7.44 miles of road.

Towson, Md.—Baltimore county will improve Roland avenue; estimated cost \$68,000.

Tuscaloosa, Ala.—Tuscaloosa county will expend \$40,000 to construct roads.

Washington, D. C.—District Commissioners will expend \$135,950 for pavement resurfacing on 28 streets and avenues.

For Highways 75 Miles Long.

Having completed about three miles of modern highways around Gabriel, and with the construction of 22 miles of improved roads under construction from the East Baton Rouge border to Ascension, the Police Jury of Iberville parish, Louisiana, has decided upon building 50 additional miles of roads. Immediate arrangements for the new construction will be arranged by the Police Jury, its offices being at Plaquemine. The parish already has 40 miles of graveled roads.

RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

FOR EXPENDITURE OF \$4,000,000.

International & Great Northern Railroad Demands Betterments and Considerable Equipment.

In the course of a hearing on railroad rates before the Texas Railroad Commission recently, Thorndwell Fay, assistant to the receiver and operating official of the International & Great Northern Railroad, testified that it planned to expend \$4,000,000 for betterments during the next two years. A part of the proposed work has begun. The plans include the ballasting of tracks and the purchase of equipment, besides the laying of heavier rails.

J. E. Aldred in the United Railways.

J. E. Aldred, chairman of the board of the Consolidated Gas, Electric Light & Power Co. of Baltimore, and also of the Pennsylvania Water & Power Co., has acquired a large interest in the United Railways & Electric Co. of Baltimore, and will be elected as a director in that corporation at the annual meeting on April 8. Although nothing further has been announced, it is surmised that the position of chairman of the board will be created in the United Railways, and that Mr. Aldred will be elected to it.

A result of his acquisition of stock in the United causes it to be expected that there will be closer relations established between the companies in which he is interested, especially between the Pennsylvania Water & Power Co. and the United, which is supplied with electricity from the extensive hydro-electric plant at McCall's Ferry, Pa.

Besides Mr. Aldred, the principal interests in the United Railways are those of Alexander Brown, George G. Jenkins, H. Crawford Black and John B. Ramsay of Baltimore.

The Annapolis Short Line of the Maryland Electric Railways Co. and the Maryland & Pennsylvania Railroad are also expected to be benefited by the accession of Mr. Aldred to the board of the United Railways, because the properties are related through the banking-house of Alexander Brown & Sons.

Cornerstone of Dallas Union Station.

At the laying of the cornerstone of the new Union Station at Dallas, Tex., which will cost about \$5,000,000, F. G. Pettibone, vice-president and general manager of the Santa Fe System in Texas, who is also president of the Union Terminal Co. of Dallas, remarked that the station would be constructed so that it could be enlarged by the addition of suitable units from time to time to meet the demands of traffic, and that already it has been found necessary to add one of the subunits, even before the work was actually in progress. Mayor W. M. Holland of Dallas presided over the ceremonies, which were attended by a large number of citizens. Other speakers included Royal A. Ferris of the Union Depot Committee and W. P. Hobby, Lieut.-Governor of Texas. The ceremonies were followed by a banquet.

The station was designed by Jarvis Hunt of Chicago, while the floor plans were made by Walter S. Keenan and Chief Engineer C. H. Dana of the terminal company, of which M. L. Buckner is secretary. J. W. Thompson of St. Louis is the contractor. Frank Andrews of Houston, attorney, was prominent in consummating the plans.

New Viaduct in Service.

The Queen & Crescent Route has just placed in service its new viaduct at Cincinnati, extending from the Ohio River bridge to Front and 3d streets, and also new track from that point to Smith street, enabling the company to make direct deliveries with its own engines and crews between its freight terminals at McLean avenue

and its Vine street station, instead of this business being handled by crews of another company, as in the past. These new facilities will also enable the company to make direct interchanges with the Pennsylvania lines. These facilities represent a very important improvement for all freight moving to or from Cincinnati or through that city via the Queen & Crescent Route and the Southern Railway, and will entirely eliminate delays which have hitherto occurred by reason of intermediate handling by other lines.

New Equipment, Etc.

Birmingham & Southeastern Railway is in the market for a gasoline motor car for passenger service. E. J. Pierce, Union Springs, Ala., is traffic manager.

Chicago, Burlington & Quincy Railway has ordered 20 Mikado, 15 Pacific, 15 Santa Fe type locomotives from the Baldwin Works, Philadelphia; also 200 all-steel gondola cars of 50 tons capacity from the Haskell & Barker Car Co., Michigan City, Ind.

Baltimore & Ohio Railroad has ordered 7000 tons of rails from the Carnegie Steel Co., Pittsburgh.

Pennsylvania Railroad Co. has ordered 100 flat cars of 100,000 pounds capacity each to be built at its Altoona shops.

Atchison, Topeka & Santa Fe Railway has ordered 500 refrigerator cars of 60,000 pounds capacity each from the American Car & Foundry Co., St. Louis.

Baltimore & Ohio Railroad has ordered 200 steel hopper car bodies of 50 tons capacity from the Huntington (W. Va.) plant of the American Car & Foundry Co.

New York, Philadelphia & Norfolk Railroad has ordered 76 ventilated box cars from the American Car & Foundry Co., and 2 all-steel passenger cars 70 feet long from the Pressed Steel Car Co., Pittsburgh.

Kansas City Southern Railway and the Virginia Railway are reported in the market for rails, the former for 8000 and the latter for 3000 tons.

Southern Railway is reported to have ordered 600 tons of steel from the Virginia Bridge and Iron Works, Roanoke, Va.

Lula-Homer Railroad Co., Lula, Ga., is in the market for 14 miles of 60-pound relaying rails, besides railroad equipment.

International & Great Northern Railroad contemplates buying 1000 freight cars.

Southern Railway's Earnings.

The statement of the Southern Railway Co. for January, 1915, shows gross revenue \$4,653,003, decrease as compared with January of last year \$1,085,906; operating expenses \$3,730,350, decrease \$730,500; net revenue \$922,653, decrease \$355,466, or 27.81 per cent; operating income after taxes, etc., \$706,724, decrease \$353,054, or 33.31 per cent. From the latter must be deducted hire of equipment, rentals of lines and interest on bonds.

The company spent during January for improvements to its roadway and structures \$1,007,870, an increase as compared with January a year ago of \$810,245.

The directors have decided to pass the preferred stock dividend due April 1.

Fort Myers to Miami.

The Fort Myers, Marco Bay & Miami Railroad Co. proposes to build a line about 150 miles long from Fort Myers, Fla., southward to Naples and Marco Bay; thence easterly for two-thirds of the distance across the State and finally southeast to Miami. Bids for construction and equipment will be opened about July 1 next. The route is level, and only 18 miles of trestling altogether will be required. Connection will be made with the Atlantic Coast Line at Fort Myers, and with the Florida East Coast Railway at Miami. W. J. Hilds, R. S. Hall and S. P. Hollinrake of Ocala, Fla., and James R. Collins of Jacksonville, Fla., are trustees for the backers of the plan, who as yet are not disclosed.

The West Coast Construction & Development Co. is

to build the road, and incorporation articles for it are being prepared. It is estimated that to construct the line and its docks and terminals will cost about \$2,000,000. W. B. Clay of Arcadia, Fla., is chief engineer. A detailed survey of the route is to be started March 20. It lies through what is described as a rich region containing large stretches of fertile soil, great tracts of pine and cypress timber and extensive grazing lands. Right of way has been obtained.

It is further planned to build a short branch from Fort Myers southwest to Punta Rassa on the western coast of Florida at the mouth of the Caloosahatchie River.

Petersburg to City Point, Va.

Preliminary survey has begun for the proposed Petersburg & Appomattox Railway between Petersburg and City Point, Va., which will be from 10 to 15 miles long. It will be an electric line, and the present capitalization is \$100,000 for construction purposes, etc. Although the charter was obtained only on March 2, the engineers have accomplished considerable office work for the enterprise. The proposition has attracted much interest, and it is apparently assured that when the right of way and other preliminaries are settled the company will be financially able to push construction. The officers are T. M. Wortham, president; D. W. La Prade, vice-president; W. W. La Prade, secretary and treasurer, all of Richmond, Va. Edwin Wortham is electrical engineer.

Will Convert to Electricity.

The St. Tammany & New Orleans Railway & Ferry Co., which has been operating a motor-car line between Mandeville, Abita Springs and Covington, La., 13½ miles, will, it is announced, convert its railroad to electric operation, beginning to move traffic with the new power on June 1. Reconstruction of the track has begun, and the erection of an electric power plant will be started immediately.

The company is preparing at Helenburg, a station between Mandeville and Abita Springs, a large amusement park, one of the features of which will be a swimming pool 120x60 feet. Joseph Birg of Mandeville and others are interested in the road.

Interurban for Polk County, Florida.

A. J. Holworthy, secretary of the Lakeland (Fla.) Board of Trade, writes that steps are being taken to obtain right of way, etc., for the construction, equipment and operation of an interurban rapid transit line to connect several important towns in Polk county, and the various places will be asked to grant franchises. Purchase of \$1,000,000 of bonds or more has been assured by responsible persons on favorable terms. C. C. Rogan, M. F. Hetherington, W. F. Sneed, S. F. Smith and A. J. Holworthy, members of the Board of Trade, have the plan in hand.

Financing Arranged for Terminal.

It is announced at New Orleans that all financing to fulfil the construction plans of the Transmississippi Terminal Co. has been arranged by the directors, who also completed details concerning the contracts, and that the outlook for material progress is gratifying. J. W. Thompson, Wainwright Building, St. Louis, is the contractor for the freight and passenger stations. E. J. Pearson of St. Louis, first vice-president of the Missouri Pacific Railway and also vice-president of the Transmississippi Terminal Co., presided at the meeting.

Automatic Block Signals.

Electric automatic block signals have just been placed in service by the Alabama Great Southern Railroad between Irondale Junction and 11th street, Birmingham, six miles, thus completing the block signal protection over the entire line from Wauhatchie, Tenn., to Meridian, Miss., with the one exception of the stretch between 11th street, Birmingham and Burnstall, formerly

Mobile Junction, Ala., which will be similarly equipped as soon as the construction of the second main track is completed there.

Railroad and Coal Companies Distinct.

In the article relating to the Clinchfield Railway last week it was inadvertently said that the Clinchfield Corporation controlled the Clinchfield Railway. It is the Cumberland Corporation that controls the railway, and, moreover, the Clinchfield Coal Corporation has no interest in the road. Furthermore, the Cumberland Corporation has no interest in coal lands, and the railway and the coal corporation are entirely separate enterprises.

Alabama Power Co.

Mr. James Mitchell of New York, president of the Alabama Traction, Light & Power Co., New York, writes to the MANUFACTURERS RECORD as follows:

"Owing to the war, it was impossible to secure funds to complete the work in Alabama, and, as a consequence, last fall the Alabama Traction, Light & Power Co. was unable to meet the interest on its bonded indebtedness of over \$13,000,000. A meeting of the bondholders was held and the bondholders resolved to defer one year's bond interest for three years and the issue of a direct underlying mortgage was authorized on the operating properties in Alabama. This is the issue sold to Harris, Forbes & Co. A part of the proceeds will go to pay off arrears of indebtedness to manufacturers and contractors, and the balance will be used to extend transmission lines into new territory. Local improvements of some importance are also contemplated in the different operating properties."

The Alabama Power Co., Birmingham, has filed a mortgage to the amount of \$5,000,000. It is understood that about \$2,000,000 will be available for early betterments in the Birmingham district, where the company has merged a number of companies it controlled for several years, as stated last week.

West Virginia Geology.

The West Virginia Geological Survey, Morgantown, W. Va., has just published its Detailed Report on Logan and Mingo Counties, a volume of 776 pages, illustrated with 15 half-tone plates and 23 zinc etchings; also a case of two maps covering the topography and geology of the entire area of both counties in one sheet. The soil map and report soon to be published will be sent gratis later to all who receive this volume. In addition to the detailed description and revision of all the rich coal beds and other geologic formations exposed in these counties, the geologic map gives the structure contours and outcrops of the celebrated No. 2 gas coal, as also that of several other valuable coal beds, along with many new sections, analyses, etc. Price, with case of maps, delivery charges paid by the Survey, \$2.

Expenditures of \$14,625,000 for Dallas.

Approximately \$14,625,000 has been announced for expenditure during 1915 for various improvements at Dallas, Tex. Of this amount, the Dallas Electric Light & Power Co. will expend \$500,000 for placing its wires under ground, and the city has \$400,000 for bridges and streets. Other improvements include the following: \$600,000 for school buildings; \$250,000 for parks; \$1,250,000 for interurban elevated railway, yards and terminals; \$5,000,000 for union passenger station; \$500,000 for buildings of the Southern Methodist University; \$100,000 for the Harris-Lipsitz building; \$75,000 for the Labor Temple.

For 1000 Tons Daily.

A daily output of 1000 tons of coal when developed is the plan of the New Sebree Coal Co., organized to develop coal land at Sebree, Ky. An acreage of 1050 will be developed, and mines are now equipped. The company's officers are: Chas. A. Sine, president; Jas. B. Brown, vice-president; Percy B. Smith, secretary-treasurer, all of Johnston City, Ill.

TEXTILES

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the MANUFACTURERS RECORD. We shall be glad to have such matters at all times, and also to have any general discussion relating to cotton matters.

The Cotton Movement.

In 224 days of the present season, according to the report for March 12 of Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, the amount of cotton brought into sight was 12,442,377 bales, a decrease under the same period last year of 1,012,600 bales. The exports were 5,891,380 bales, a decrease of 1,506,400 bales. The takings were, by Northern spinners, 1,995,528 bales, a decrease of 246,990 bales; by Southern spinners, 2,318,988 bales, a decrease of 231,645 bales.

No Intention to Enlarge.

Charles H. Haynes, secretary and treasurer of the Cliffside Mills, Cliffside, N. C., writes to the MANUFACTURERS RECORD that the statement in our issue of March 4, to the effect that his company plans enlarging the plant, "is all an error, and we have no intention whatever of enlarging our plant any time in the near future."

Kincaid Manufacturing Co

The Kincaid Manufacturing Co., Griffin, Ga., will add 8500 spindles and 200 looms to its present equipment, and contract for the new machinery (including picking, carding and spinning) has been awarded to Rogers W. Davis, Southern representative of the Saco-Lowell Shops, Lowell, Mass.

To Build Hosiery Mill Addition.

Messrs. W. B. Davis & Son, Fort Payne, Ala., have decided upon an addition to their hosiery mill facilities, and H. L. Huntington, Chattanooga, Tenn., is the architect for the enlargement. Their new building will be one story high, mainly of brick, 150 feet long by 64 feet wide.

Textile Notes.

Oriental Textile Mills, Houston, Tex., will make improvements costing \$5000.

Hamilton Carhartt Mills, Rock Hill, S. C., will install 150 automatic looms, and has contracted for this machinery. It will also add carding and spinning machinery for 2500 spindles, contracts for which are to be awarded.

J. W. Cannon & Sons, Concord, N. C., and Smith & Ethridge, Jackson, Ga., have acquired the Social Circle Cotton Mills at Social Circle, Ga. This mill will be placed in the best condition for economical production. It has 10,000 spindles and 400 looms.

French Broad Manufacturing Co., Asheville, N. C., is receiving additional machinery recently ordered for its bleaching department. These installations will provide a daily capacity of 65,000 pounds of goods and enable the company to produce white cloth of all kinds, including sheets and pillow cases.

At Winston-Salem, N. C., in February, 13,172,505 pounds of leaf tobacco were sold, an increase over the sales of February last year of 3,250,850 pounds.

The eleventh annual convention of the Southwestern Electrical and Gas Association will be held at Galveston, Tex., May 19-22.

FOREIGN NEEDS

Machinery and equipment wanted abroad are mentioned in many letters received by the MANUFACTURERS RECORD, which is so widely read in foreign countries that we are in constant receipt of many letters from all parts of the world. For the benefit of our subscribers seeking foreign trade we publish the following extracts from recent letters:

Wants American Wares.

Abram de Solh, P. O. Box 95, Curacao, West Indies, writes to the MANUFACTURERS RECORD as follows:

"I want to communicate with manufacturers in order that my sample-room can be more complete of American goods, for I am not only working in this island, but do have resident agent in Venezuela, with headquarters in Cavaas, as also resident agent at Port au Prince, Haiti, who visits Colombia, Santo Domingo and Jamaica. I can bring manufacturers in direct connection with importers, for I am very well related with those of good financial standings, and have to say that my resident agents are in same condition. American goods wanted: White enameled ware, similar to what is exported from Germany; chairs of imitation maple wood, walnut and golden oak, costing from \$5 to \$6 dozen, and with cane seats, prices quoted f. o. b. New York; corn or cotton-seed oil in tins of three and five gallons, for table and cooking use; flour; cornmeal; cattle food; lard; fine and ordinary butters; shoes; hosiery; hats; umbrellas; prints of all kinds; ducks for gentlemen's suits; tires; oil; grease for automobiles of selected qualities; automobile similar in price and construction as Ford, but of a better appearance than Ford; kerosene in tins of five gallons; gasoline; carbide lamps for cars, houses and illumination of streets."

Various Products Wanted.

Tonna & Ghirlando, 28 Boulevard Saint-Denis, Paris, France, write to the MANUFACTURERS RECORD as follows:

"We would be glad if you could help us in obtaining agencies of American firms who would be desirous of doing business through us in France, Italy, Greece and North Africa. We are export agents, and have reliable agents in the various principal markets of the said countries. The following are the principal lines in which we are interested: Flour and alimentary products; cotton oil; hospital and medical supplies; dry goods; hosiery; shoes for soldiers; nails; skins and leather; soap and perfumery; writing paper; beer in cases of 48 bottles, etc. The terms are cash against documents at port of discharge through a bank. Prices should be quoted c. i. f. port in France, Italy, Greece or elsewhere."

Wants Agencies for Panama.

American Supply Co., Panama, R. P., writes to the MANUFACTURERS RECORD as follows:

"We would like you to put us in communication with manufacturers of the following: Asbestos and steam packing; light hardware; specialties; small electric-light generators; electric-light fixtures; water turbines; kerosene engines, mowing machines; hay rakes; wheat drills; reapers; thrashing machines; cane mills and small sugar-mill machinery; shoes, hats and gentlemen's clothing; woolen blankets and cotton cloth; household furniture; iron beds; brass beds; springs and mattresses; wicker furniture; mirrors; kerosene lamps; chandeliers. We want to handle on a commission basis. We believe we can save the manufacturers quite a lot of expense and at the same time put the goods on the market at a great advantage."

Celluloid and Cotton.

Lino Capietti, Rua 15 de Novembro, 36-A, S. Paulo, Brazil, writes to the MANUFACTURERS RECORD as follows:

"So far as the manufacturers of Brazil are concerned, with whom I have the pleasure of being in commercial contact, I have recently had a request for quotations and samples of the following articles, and I would be

glad if you could help me: Raw cotton for making thread and twine; celluloid in sheets, rods, etc., for the manufacture of stamped and pressed goods, has heretofore been imported from Germany. Tell your people to forward samples with prices. You might ask your manufacturers to write in French."

Wants to Represent Manufacturers.

A. Sivarama Aiyer, the City Paper Mart, Tuticorin, India, writes to the MANUFACTURERS RECORD as follows:

"We are really very much interested in various lines of machinery and hardware goods, and shall be glad to enter into business relations with manufacturers. We shall be glad to hear from them and receive samples and quotations, which should be c. i. f. c. and not f. o. b., as the latter cannot give us any idea of the actual expenses of transit which will have to be incurred. References about us may be made to the National Association of Manufacturers of U. S. A. Our lines are paper, stationery, hardware, glass and enamelware, sundries, metals, cycles, motor cars and chassis, machinery, tools, paints and varnishes, fancy goods, patent medicines, etc."

For South American Trade.

W. S. Sigler, Sherman, Tex., writes to the MANUFACTURERS RECORD that he is prepared to correspond with manufacturers relative to developing sales markets in South America. He states he has lived in Latin-American countries more than 18 years, and consequently speaks their language, knows their customs and manner of doing business, etc., having represented well-known enterprises. Until the Mexican war interfered with the operations of the Toltec Portland Cement Co. Mr. Sigler was sales manager at Mexico City for that company.

Bells and Small Tools.

J. Pierre Couve, 31a Crane Place, Pitt street, Sydney, Australia, writes to the MANUFACTURERS RECORD as follows:

"An electric bell I would like to get hold of is the household bell, 2½, 3 and 4 inches, with wooden base; must be cheap; thousands are sold here yearly. Another line of interest to me is tools of all descriptions, specially screwdrivers, gimlets, borers, hammers, vises, spanners, wrenches, etc. I shall be very much obliged if you could put me in touch with reliable makers."

For India's Trade.

Sind Supply Stores, 423 Rambagh road, Karachi, India, write to the MANUFACTURERS RECORD as follows:

"We are interested in the following lines, and shall be glad if you will kindly put us in communication with the suppliers. We shall also be glad to communicate with journals and periodicals dealing with these lines. Stationery, books printed, cricket and other game requisites, hosiery, toys, toilet requisites, haberdashery, sewing machines, home embroidery machine and kindred lines."

Leather Castors and Velours.

Bensussan, Sides & Co., Salonique, Greece, write to the MANUFACTURERS RECORD as follows:

"We have orders on hand for 100 dozen leather castors, black and choice A. B. C., 5 to 6 square feet English measure to the skin; 150 dozen leather velours, first quality, 5 to 6 square feet English to the skin. We want strong leather. Do us the favor of getting some suitable American factories to write direct and make offers, at the same time offering samples."

Wanted for Egyptian Trade.

Joseph Ayoub & Co., 44 Rue Kasr-El-Nil, Cairo, Egypt, write to the MANUFACTURERS RECORD as follows:

"We ask you to give our address to manufacturers of chemicals and supplies for tanning leather; extract of chafouguier; mimosa gum; quebracho; degreas (obtained from fats and grease); hides and leathers; divi divi

(from plant grown in South America and West Indies and contains high percentage of tannic acid). We have urgent calls for these, and want prices by cable f. o. b. Alexandria; send samples."

English Engineer Wants Machinery.

F. Wide, engineer, "Channel View," 3 Walsingham road, Hove, Sussex, England, writes to the MANUFACTURERS RECORD as follows:

"I am in touch with capitalists on your side reopening a mill to manufacture artificial silk, imitation horse hair, etc., by my improved process. I think your MANUFACTURERS RECORD will give me pointers on the firms supplying machinery such as I shall want."

Electric Batteries, Leather, Tools, Etc.

Hubert Constant, 33 Rue Vauban, Cherbourg, France, writes to the MANUFACTURERS RECORD as follows:

"I sell Morocco leather, electric batteries, flashlights, toys, kitchen utensils, small tools, etc. I have been engaged at my work for 10 years, and represent many manufacturers and producers of this place and America. I would be glad to have your people make me their agent for France."

Wants Lead Silver Smelting Furnace.

Ivan A. Bayley, Box 481 North Sydney, N. S. W., Canada, writes to the MANUFACTURERS RECORD as follows:

"Please give me the address of manufacturers of a small smelting furnace capable of treating small quantities of ore, of from 1 to 10 tons, which could be worked on a prospect. The ore to be treated is a lead silver ore of about \$9 value."

To Establish Buying Connection.

Newman Company, Tongva, New Hebrides, Australasia, writes to the MANUFACTURERS RECORD as follows:

"We succeeded an old firm here who had been established since 1875, and we contend that what we do not know about business in New Hebrides is not worth knowing. We are trying to establish a buying connection in New York to whom we can refer."

Lathes, Drills, Forges, Etc.

Compania Anonima de Maquinaria Industrial, Serano 1, Madrid, Spain, writes to the MANUFACTURERS RECORD as follows:

"May we ask you to put us in touch with American makers of lathes, drills, tools, machinery for forge work, etc."

In a notice published in our issue of March 4 of the plant of the Hampton Roads Silver Co. of Norfolk, Va., there was an error as to the capacity of the plant. The actual capacity is 500 dozen knives and forks a day, and it could be increased to 1000 dozen. The plant is between three and four years old, and the machinery is of the latest automatic type and is electrically operated throughout.

The Georgia Fruit Exchange, W. B. Hunter, president, has worked out in detail plans for marketing carload shipments of apples, cantaloupes and other fruits and vegetables produced in Georgia.

The Commercial Club of Statesville, N. C., is circulating a beautifully illustrated booklet entitled "Attractive Statesville," telling of the advantages of life in that highland community.

The Paducah Box & Basket Co. at Paducah, Ky., has been given a contract for 80,000 strawberry crates to cost \$16,000 by the Warren County Strawberry Growers' Association.

MECHANICAL

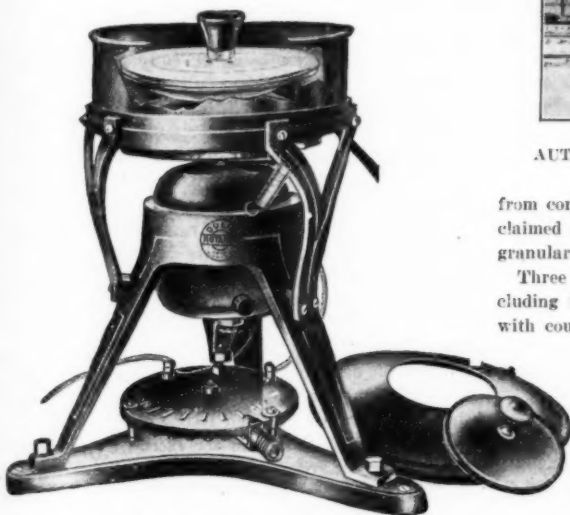
Illustrations and descriptions having news value pertaining to developments in machinery, mechanical devices and inventions will be considered for use in this department.

Apparatus for Testing Road Materials.

The Dulin Rotarex, a centrifugal machine designed for extracting bituminous aggregates, and manufactured by the Braun Corporation of Los Angeles, Cal., is especially adapted for analyzing paving and road compounds, such as bitulithic macadam and ordinary surface mixtures. A simple speed-changing switch on the base accommodates the machine to various mixtures.

This little portable device is claimed to do in a few minutes work that required several hours to perform, and tests are said to have proven that an inexperienced operator can do the work of 3½ hours in six minutes. Samples can be taken from mixers or wagons and their constitution determined before dumping and without delaying the work. Exact information can be obtained at every step, proportions checked, weighings verified, etc., without loss of time or risking faulty work. The States of New York, Pennsylvania, Maryland, West Virginia and New Jersey and many of the largest cities are reported to rely on this little apparatus.

In extracting bituminous aggregates a non-inflam-



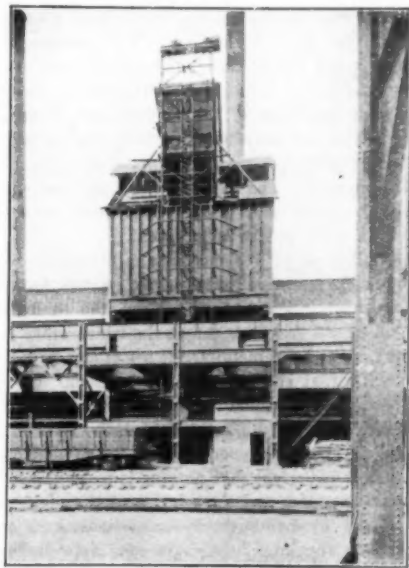
DULIN ROTAREX TESTER.

mable solvent is used. Fifty grams of material, including the solvent, placed in the aluminum bowl of the machine constitute one testing charge. The bowl, which is covered with a plate-glass top so as to permit the sample at all times to be observed, is fitted with a hollow axle that fits snugly over the shaft. Between the plate-glass cover and edge of the aluminum bowl a felt paper ring one inch wide, is placed. This cover is held firmly in place by a funnel-shaped screw, which engages with the threaded hollow axle. Solvent is added as needed through the funnel-shaped screw. A special feature is the small hole extending through the screw, which prevents the receptacle becoming airbound while being filled. The shaft of the motor projects into a cylindrical copper shell, the bottom of which is so inclined as to drain through a spout. The copper bowl is fitted with a two-piece cover, the smaller of which is removed when supplying additional solvent.

The Dulin Rotarex, which is operated on any lighting circuit, is driven by a high-speed electric motor manufactured by the Westinghouse Electric & Manufacturing Co. of East Pittsburgh, Pa.

Elevating Materials by Skip Hoist System.

Exceedingly low cost of maintenance, and at the same time being either entire or semi-automatic in its operation, are some of the advantages claimed for the "Cobasco" skip hoist system of handling materials as developed by the C. O. Bartlett & Snow Company of Cleveland, O. For elevating the product of mines, quarries and rock-crushing plants, and especially in the handling of coal, coke and ashes, the field of application of the "Cobasco" skip hoist system is said to be very large. As all the moving parts are entirely removed



AUTOMATIC SKIP HOIST AND STORAGE BIN.

from contact with the materials handled, the system is claimed to be particularly adapted to the handling of granular, gritty substances.

Three general types of skip hoist construction, including two skip buckets in balance, one skip bucket with counterweight and one skip bucket without counterweight, all of which may be automatically or semi-automatically controlled, depending on the capacity, material and general conditions surrounding the proposition, have been developed by the company. Principal parts are the skip bucket, hoisting cable and the electric hoisting engine, together with the essential mechanical and electrical control system.

With an entirely automatic skip hoist a storage hopper from which the material is delivered to the skips is required. This type is used where the material is not of two large dimensions and also where it is required to hoist a regular quantity to a given height. It is dependent on the material itself for making the automatic system possible. If enough material is contained in the storage hopper to fill the skip bucket, it automatically starts and continues operating until not enough material is left in the hopper to fill the skip bucket, in which case it automatically stops.

The receiving hopper is usually made of steel, and when using two skips in balance requires a double con-

struction, each half being fitted with a chute provided with a gate and arranged to deliver into the skip bucket, and are so arranged that they will automatically be closed except when the skip bucket is in position to receive material.

Steel skip buckets are made with heavy forged steel bale and proper connections for attaching hoisting cable, which, in turn, passes over sheave wheels to the hoisting engine.

Hoisting engine, having a cast-iron winding drum direct connected to motor by means of cut-steel gears, all mounted on a heavy bedplate constructed of structural steel members thoroughly braced, with a multiple contact limit switch direct geared to the shaft of the hoisting drum, is provided. A solenoid brake is also mounted on the extended armature shaft of the hoisting engine motor. This solenoid brake is so arranged as to be applied the instant current is cut off from the motor, and is of ample capacity to hold the skips, either loaded or empty and in any position, upon failure of electric current.

In addition to the mechanical control system of counterweights, an electrical control system is provided, consisting of limit switch attached to hoisting engine, solenoid brake and a series of mechanical switches for the introduction of electrical resistance at suitable points in the travel of the skip buckets so as to produce a slow-down and starting effect and prevent an extra heavy current rushing in on the line and through the motor at the time the current is turned on. This control system is primarily automatic in its operation, but provision is made for a push-button control so as to insure the starting up of the hoisting engine under any conditions.

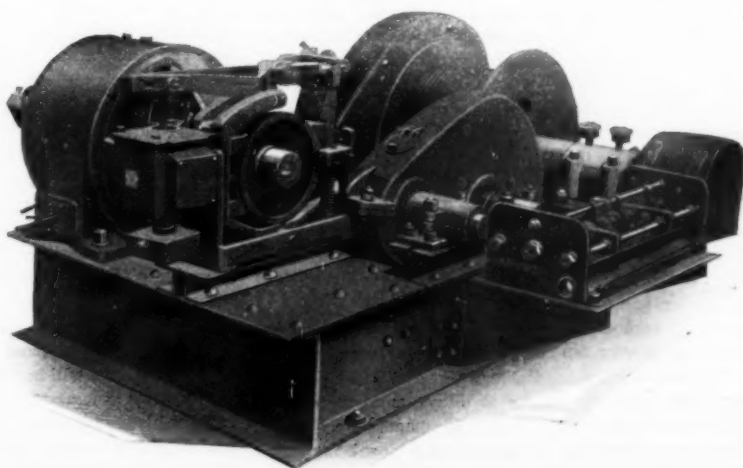
To fully describe the automatic system, let it be assumed that ore is the material to be handled, and is to be elevated from a track hopper direct by means of skip buckets to an overhead bin. Assuming an empty bucket at the bottom under one of the track hopper gates, the companion bucket having been hoisted to the top position in the proper location for dumping. The bucket, which is in the lower position, will have opened on its downward travel the gate of the chute from the track hopper, thus permitting a flow of ore from the track hopper into the skip bucket. As soon as the bucket is sufficiently loaded, the weight of same raises the counterweight, which automatically closes the gate of the chute leading from the track hopper, thus stopping the flow of ore into the skip bucket. In addition to closing the gate, it also operates an electric switch, which admits current to the hoisting engine motor. The skip bucket then starts upwards slowly, and after a short period of time, by means of the automatic control system, the motor is accelerated and the bucket travels at full speed until it nears the top or dumping position, at which point the proper slow-down resistance is inserted and at the proper moment the power is cut off from the motor and the solenoid brake applied, thus bringing the bucket to a stop in the dumping position, the other bucket being in the lower or initial position to repeat the cycle of operation.

The type using one bucket is dependent for its automatic operation on a special device arranged to allow for the hesitation of the bucket after dumping and its automatic return.

The push-button control system operates much the same as the full-automatic type, and is used only where intermittent service is required or where the material is of such size and nature as to require special consideration at the loading point, and also where it is not convenient to have a storage hopper, such as required by the full-automatic type.

New Fuel from Waste Products.

Importance of the proper disposal of waste matter in cities and towns has been recognized by health authorities and sanitary engineers everywhere. Waste products of many industries and the expense of garbage disposal may now be turned into an asset by the utilization of this waste material as a basis for the manufacture of a new fuel, known as "Oakol," which is claimed to have a relative heat value equivalent to oak wood. Not only the problem of waste is claimed to be solved for important industries, but also the pressing necessity for the disposal of the garbage in a sanitary way and pro-



7½-HORSE-POWER HOISTING ENGINE FOR "COBASCO" SYSTEM.

ducing one of the necessities of life which is becoming more serious each year—fuel.

Coal dust, the waste product of coal mines, such waste matter as garbage and refuse from packing-houses, feed yards, factories, etc., using water tar from gas plants and oil refineries which is claimed to disinfect and deodorize the garbage as well as assist in binding the materials into a solid mass, is manufactured into "Oakol" through a process similar to the making of stiff-mud bricks. Practically the same machinery is employed as in brickmaking, but instead of using kilns and dry-rooms, "Oakol" briquettes are cured in the open and are ready for use when dry. The combination producing the best results is said to be a mixture of equal quantities of coal dust and garbage, with the addition of 7 per cent. tar. For convenience in handling, etc., the bricks are made in two-pound sizes.

Advantages claimed for "Oakol" are that it is easy to ignite, convenient to handle and store, and produces less ash, soot, clinkers and smoke. The immense amount of heat that is claimed to be produced from "Oakol" is said to be due to the character of the materials out of which the fuel is made and their combination in such form as to allow their entire heat-developing energy to be utilized, as it all consumes in burning without waste and with almost perfect combustion; also that the binding material in "Oakol" has a heat value of 8947 B. T. U., thus adding heating energy to the fuel.

The first plant to manufacture "Oakol" was established at San Antonio, Tex., several months ago by the Oakol Manufacturing Co. This company purchased the exclusive right to manufacture this fuel in Bexar county, and entered into a contract with the city of San Antonio for the disposal of its garbage for a consideration, delivered to the company's plant, which was about the cost of incineration, and the company is said to be manufacturing this fuel and finding a ready market. A second "Oakol" plant is now being erected at Austin, Tex., by the Austin Oakol Manufacturing Co., and has closed a contract for the garbage of the city of Austin. G. E. Richmond, 1407 Congress avenue, Austin, Tex., designing and erecting engineer, reports the Austin plant will be in operation April 1, 1915.

Municipal "White Way" Lighting.

Among the striking evidences of the progress of the South is the development of cities, large and small, along esthetic lines, as demonstrated in the numerous installations of systems of ornamental street lighting. Recent street-lighting improvements in this section include contracts for installing "White Way" lighting systems in Greensboro, High Point and Salisbury, N. C., which were secured since the beginning of the European war by George A. Miller, engineer, who has recently opened Southern headquarters at Spartanburg, S. C. The ornamental lighting system installed for the city of Baltimore is among the successful "White Way" systems established by Mr. Miller.

To properly or beautifully light a city's main thoroughfare may not yet be a civic necessity, but it is a striking evidence of a city's pride and progress, and has come to be recognized as a business and publicity asset. With the splendid new lighting units or lamps now perfected in practical operation for street lighting, the fine artistic lighting standards in the shape of ornamental cast-iron posts and the new and perfectly safe steel-taped cable for underground as well as overhead wiring, modern systems of ornamental street lighting are being installed scientifically, rapidly and comparatively inexpensively. These systems have occasioned a greatly increased output in combination trolley poles and lighting standards, brackets, lamps and insulated wire throughout the South where they are most popular. Local electric companies and city governments co-operate on a practical and satisfactory basis in promoting and installing ornamental street lighting for both the business and residence streets.

This co-operative basis has been carefully worked out after long investigation and experiment. It is the work of the lighting expert that gets the city and the electric company together on a basis satisfactory to the civic organization, the newspapers and the people; but his greatest service is rendered the city in directing in all its many artistic and practical phases the selection and installation of a system appropriate to the needs of the individual city.

Disposition of Smelter Smoke.

With the idea of bringing about a better understanding between the metallurgical industry and agriculture as to the troublesome smoke problem at smelting and ore-roasting plants, the United States Bureau of Mines has just issued Bulletin 84, "Metallurgical Smoke," by Charles H. Fulton, consulting metallurgist.

Metallurgical smoke causes considerable friction between the metallurgical industry and agriculture in certain parts of the country. Owners of smelting plants are making every effort to devise ways and means to do away with possible damage and annoyance from smoke, and are meeting with success. The problem is peculiarly difficult in this country because of the large tonnages of material that must be handled. The solution of the problem is not yet at hand, and much work still remains to be done. As the mineral industry is one of the great basic industries of the country, and of necessity is entitled to full consideration, it should be accorded freedom to work out the smoke problem to the benefit of all concerned. The effort is made in this paper to present the problem of metallurgical smoke as it actually exists, without bias of any kind.

The author says: "Sometimes, in discussions of the smelter-smoke question by interested parties, gross misstatements of fact are made. Thus, the agriculturist sees bad effects from smelter smoke which other people cannot find, and the metallurgist sometimes goes so far as to claim that smelter smoke is beneficial to vegetation, and even to assume that the damaging constituent of smelter smoke is sulphur trioxide only, giving rise to sulphuric acid, and to ignore entirely the sulphur dioxide content. It is evident that nothing is to be gained by a policy of this kind, and the solution of the problem lies in its study by disinterested commissions, such as the one recently appointed by an agreement between the Department of Justice and the attorneys of the Anaconda company to study the smoke question in Montana in its relation to the forest reserves.

"It is interesting to review the general situation in this country. Much of the trouble is in the Western States, and chiefly in Montana, Utah and California. In those States very large tonnages of sulphide ores are smelted with the production of great volumes of smelter smoke, comparatively rich in sulphur dioxide and other injurious constituents. A number of the smelters have been in operation for many years, and have experienced difficulties only comparatively recently.

"It is well known that mining and metallurgy are often the advance agents of civilization and the pioneers in establishing industrial centers. In many localities the mines and the smelters supplied by them were essentially the only locators within great stretches of territory. Around them grew communities and cities dependent upon them for a livelihood. Agriculture was of relatively small importance. But conditions changed with the increasing population of the country and the closer settlement of the West, and, coincident with this increase, an agricultural industry has grown which, in the vicinity of the smelting plants, naturally suffers in some degree from smoke. Still, the area damaged is comparatively small, and even this damage can be much lessened by the adoption of proper means. Since some plants have installed devices to remove sulphuric acid from the smelter smoke and have the smoke diluted with air, conditions have been much ameliorated in certain districts.

"The damage that smoke can do depends largely on climatic conditions, especially the relative humidity of the atmosphere. The damage is much greater in regions having a moist than in those having a dry climate. In this respect such States as Montana, Utah and Arizona are favorably located, and smelters in those States can probably discharge gases richer in sulphur dioxide without doing damage than those in regions having a moister climate. For the same reason, the damage done at different seasons of the year varies. The moist atmosphere and the rains of spring and early summer conduce to increase damage to vegetation, particularly as at that time of the year the early crops and young vegetation are susceptible to serious injury.

"It has been customary to discharge the smelter smoke by means of very tall chimneys, on the assumption that if the noxious gases are discharged at considerable height they will have opportunity to diffuse more thoroughly and thus become so diluted as to be comparatively harmless, but the efficiency of this method is now being questioned. There is reason to believe that the use of high stacks increases the area to damage, whereas low stacks

may intensify the damage but concentrate it within a smaller area. Probably high chimneys do not serve their purpose as well as was anticipated, and at present the better method may be to dilute the smelter smoke and discharge it from a number of low stacks."

An Evaporating Plant for Fruit and Forage Plants.

Editor Manufacturers Record:

An idea has often been worth millions of dollars to a corporation as well as to the community.

A suggestion sometimes helps in the solution of the most difficult problem. I hope that what I may say herein will prove beneficial to many progressive farmers of the Southern States.

America is now short on hay; in fact, is nearly always short of first-class hay. This is especially true of the Southland. I do not remember to have ever known enough hay to be grown in these States for home consumption, and in all of the cotton States hay always brings a higher price than in the Northern States. All of Europe is short of hay this year and will be for some time to come on account of the war now waging there. The war nations are looking to the United States for hay as well as other army supplies. The farmers of this country need more hay than ever at this time to feed and fatten the beef cattle. So there never was such a time as this in the history of our country for the progressive farmer to make money out of hay. How about the Southern farmer? Is he going to neglect this golden opportunity when he has the advantage in this hay-making business if he will only use it wisely? There is no difficulty in growing hay crops in the South, but the one great trouble is curing the grass after it is cut. Now, the solution, in my opinion, is an evaporation plant built for this purpose where the farmer can take the freshly-mowed grass and go home with nicely-dried hay after a few minutes. Such a plant is rather expensive at present, costing about \$15,000, but a co-operative plant could be established in a community where the farmers around could haul their cuttings and pay a toll the same as at the cotton gin. If the farmer has a large acreage, it will pay him to own his own plant. There are several such plants now in operation and have proven successful. Some of the advantages to be derived from such a plant are that it insures the curing of the hay, regardless of the weather, which in itself is one of the great drawbacks to the hay-making in the Southern States, especially along the coast in the lowlands. If the farmer in this section can only cure his hay successfully, it places him ahead of the farmer in the West and North for the reason that he can cut more crops each year and in many cases make a larger crop each cutting. Again, as a rule, hay sells for more in this section than elsewhere, and will command a better price in the future because of the nearness to export ports. But the best of all is the fact that evaporated hay is superior to sun-cured hay, and all stock will eat it cleaner and do them more good, according to expert advice. I hope to see hay-evaporating plants take the place of many cotton gins or become as common as such in the cotton sections of the South.

Of course, it will be a good thing for hay curing alone to build such evaporating plants where needed, but there is no good reason why fruits could not be cured in this connection profitably and thus add to the benefits derived by the community at large. Along the coasts, where the fig grows, this fruit could be dried successfully and prove a most profitable enterprise. The preserving of figs in this section is conducted in a limited manner, but in my opinion the dried figs made in this part of the South will prove even more profitable and desirable if conducted in this connection than the preserves, besides more easily managed. In other localities where apples and peaches and plums and such fruits which are profitable to evaporate may be done so in connection with the hay plant. Of course, the canning of other fruits and vegetables may be connected with this hay plant with little extra cost. So you see that the possibilities of such an enterprise are indeed great in any community, and those who say to themselves that it cannot be done will be the losers.

Now for a general advance all along the lines of hay-growing plants and evaporating hay plants in the South, and we will move forward to the front rank, where we should be in this and other enterprises.

Aldine, Tex.

E. C. ROBERTSON.

Construction Department

IN ORDER TO FOLLOW UP

Properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

HOW TO ADDRESS

The name of one or more incorporators of a newly incorporated enterprise should always be written on letter addressed to the official headquarters or to the town of the parties sought, as may be shown in the item. Sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. By following these general directions the postoffice will generally be enabled to deliver your mail promptly, although it is inevitable that some failure by the postal authorities to deliver mail to new concerns will occur, as our reports are often published before new companies are known and before they have any established office for the receipt of mail.

WRITE PERSONAL LETTERS

In communicating with individuals and firms reported in these columns a letter written specifically about the matter reported will receive better and quicker attention than a circular. In most instances a return postal card or addressed and stamped envelope should be enclosed with letter.

In correspondence relating to information published in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

DAILY BULLETIN

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$25 per year.

All advertising contracts in the Manufacturers Record for three months or longer include a subscription to the Daily Bulletin for the contract period, as well as a subscription to the Manufacturers Record.

BRIDGES, CULVERTS, VIADUCTS

Fla., Bradentown.—Manatee County Sarasota-Venice Road and Bridge Dist. voted \$250,000 bonds for road and bridge construction. Address E. C. Bruce, Sarasota. (Lately noted.)

Fla., Jacksonville.—Duval County Comms. let contract J. E. Iwanowski to construct Trout Creek Bridge; cost \$3000.

Mo., Kansas City.—Park Comms. approved plans for Chestnut St. viaduct, which will connect East Bottoms with Independence Ave.; estimated cost \$100,000.

S. C., Chester.—Chester County Comms. will issue \$18,000 bonds to improve bridges, roads, etc.

S. C., Sumter.—Sumter county issued \$10,000 bonds for bridge construction; P. M. Pitts, Supvr. and Chrmn., County Comms.; R. L. McLeod, Clerk.

Tenn., Knoxville.—Knox county let contract Sam J. Condon to grade and complete abutments to Southerland Ave. bridge crossing Southern Ry. tracks; cost \$4000.

Tenn., Rialto.—R. P. Nevil of Memphis, Tenn., is reported as arranging with County Courts of Tipton and Lauderdale counties to build steel bridge over Hatchie River near Rialto.

Tex., Dallas.—City Comms. voted to appropriate \$22,000 to construct east approach to Commerce St. bridge.

Tex., Floresville.—Wilson County Comms. let contract Alamo Construction Co. of San Antonio at \$10,500 to construct 2 iron bridges—one over San Antonio River and other over Pecos Creek.

Va., Hilton.—Scott county will erect bridge across Cove Creek, 9½ m. from Hilton; superstructure, 54-ft. span; cement rubble substructure; bids Mar. 22 at Gate City, Va.; G. P. Coleman, State Highway Commr., Richmond, Va. (See Machinery Wanted.)

Va., Norfolk.—Board of Control let contract P. W. Ruth & Co. at \$2579 to furnish material and construct bridge over Smith Creek.

Va., Norfolk.—Government bridges, to be built across inland waterway from Norfolk to Beaufort Inlet, N. C., are of Strauss bascule type; clear channels 80 ft. between fenders, roadway 20 ft. wide; contract price for

3 bridges \$82,890; Penn Bridge Co., Beaver Falls, Pa., Contr.; shop work begun October, 1914, erection February, 1915; date of completion, July 8; J. R. Jervey, Major, Corps of Engrs., Custom-house, Norfolk.

CANNING AND PACKING PLANTS

Ala., Bay Minette.—Bay Minette Truckers' and Livestock Assn., Fred C. Hall, Chrmn., purchased site on which to build sweet-potato storage-house; may also erect cannery and syrup mill.

Ala., Montgomery.—Farmers' Compress & Warehouse Co. contemplates addition of cannery to present plant. (See Machinery Wanted.)

Ark., Weldon.—Weldon Canning Co., J. F. Bell, Prest., advises was incorrectly reported capitalized at \$80,000; capital stock is \$3000; establish plant to can tomatoes, beans, sweet potatoes and pumpkins; let contract to B. R. McDearmon.

Ga., Atlanta.—Swift & Co. (main office, Chicago, Ill.) will remodel plant at 72 E. Alabama St.; cost \$5000; Contr., J. D. Johnson.

Ga., Barwick.—W. Frank Moore, Quitman, Ga., advises that company is being organized to raise and can vegetables.

Ga., Columbus.—Sol Loeb is having plans prepared for packing and cold-storage plant.

La., New Orleans.—Hugh McCloskey, Prest. American Cities Co., is reported, as interested in plan to build packing plant.

CLAYWORKING PLANTS

La., New Orleans.—Brick.—New Orleans Silica Brick Co. is being organized with Jas. H. Dyett, Prest.; will build plant on New Basin Canal to manufacture brick from sand from Tchufuncta River.

N. C., Shaleville.—Bricks.—Shale Brick Mfg. Co., capital \$50,000, inceptd. by Anson G. Betts, A. S. Hurlburt and Jas. E. Rector.

W. Va., Martinsburg.—Bricks, Vitrified Fireproofing, etc.—Municipal Shale Brick & Block Co. organized; Sempel A. Ver Valen, Prest., Baltimore, Md.; F. Vernon Aler, V.-P., Martinsburg; L. Perry West, Secy.-Treas., Washington, D. C.; J. W. Candler, Supt., Cleveland, O.; will proceed with lately-detailed plans to build plant; im-

mediate expenditure \$150,000 for daily capacity 60,000 paving blocks; future expenditure \$100,000 to add departments for manufacturing bricks, vitrified fireproofing, etc. "their facts recently noted.)

COAL MINES AND COKE OVENS

Ky., Elkhorn City.—Eastern Kentucky Black Coal & Fuel Co., Roanoke and Honaker, Va., organized to develop Kentucky coal land near Virginia; reported as to invest large amount to open and equip mines.

Ky., Perry County.—Harvey Coal Co., capital stock \$100,000, inceptd. by E. L. Douglas, V. M. Hacker, P. M. Darby and others, all of Knoxville, Tenn.; will operate coal mine in Perry county.

Ky., Sebree.—New Sebree Coal Co. is name of company lately noted organized, Chas. A. Sine, Johnston City, Ill. (later, Sebree), Prest.; acquired property already equipped; acreage 1050; daily capacity (when developed) 1000 tons; no further machinery needed at present.

Va., Norfolk.—Matoaka Coal Corp., capital \$15,000, chartered; C. M. Kaylor, Prest.; Elbert Tatterson, Secy.

CONCRETE AND CEMENT PLANTS

Tenn., Dresden.—Harris & Co. will establish concrete works.

Tenn., Kingsport.—Portland Cement.—Cinchfield Portland Cement Corp. increased capital stock from \$1,500,000 to \$2,000,000. (Lately noted having contracted for additional buildings, machinery, etc.)

COTTON COMPRESSES AND GINS

Tex., Runge.—Runge & Co. of Cuero will build gin.

COTTONSEED-OIL MILLS

Ala., Woodlawn, Station Birmingham.—Union Cotton Oil Co. inceptd. with J. G. Whitfield, Prest.; J. W. Donnelly, V.-P.; Geo. A. Blinn, Secy.-Treas., all of Birmingham; secured 6-acre site on which to build cottonseed-oil mill; concrete; fireproof; estimated cost \$100,000; Mr. Donnelly will supervise construction.

DRAINAGE SYSTEMS

Fla., Davenport.—Davenport Drainage Dist. let contract to construct drainage canal to reclaim 5000 acres swamp land.

Tex., Bay City.—Comms. Matagorda County Drainage Dist. No. 5, Geo. C. Corporan, Chrmn., let contract Arpin Dredging Co. of Houston at \$41,129.28 to construct drainage system; 255,246 cu. yds. excavation, 600 ft. drain pipe and 450 lin. ft. bridging; E. N. Gustafson, Engr., Bay City. (Call for bids lately noted.)

ELECTRIC PLANTS

Ala., Birmingham.—Alabama Power Co., James Mitchell, Prest., 100 Broadway, New York, and Birmingham, filed \$5,000,000 mortgage; plans early expenditure \$2,000,000 for extending transmission lines, providing improvements, etc.; bond issue sold to Harris, Forbes & Co., New York; part of proceeds sale to liquidate indebtedness to contractors and manufacturers, balance for extensions; contemplates local improvements of some importance in different operating properties; latter include hydro-electric plant at Lock 12 on Coosa River; at Jackson Shoals on Choccolocco Creek, near Talladega; hydro-electric plant on Big Wills Creek, near Attalla; steam plant near Gadsden; steam plant at Huntsville; steam plant at Anniston, etc. (Lately noted having merged various companies, planning betterments, etc.)

Ark., Horatio.—City is reported as considering construction of electric-light plant. Address The Mayor.

Ark., McGehee.—City, J. J. Simmons, Mayor, will vote May 1 on \$65,000 for electric-light and water plant. (See Water-works.)

Ark., Newport.—Arkansas Light & Power Co. of Arkadelphia, Ark., is reported to expend \$30,000 to \$25,000 to improve Co-operative Electric Co.'s plant which it lately acquired. (Noted in January to have acquired Co-operative plant and to improve.)

Ark., Rison.—City will construct electric-light plant. Address The Mayor.

Fla., Manatee.—Davis-Manatee Co., capital stock \$50,000, inceptd. to operate electric plant, etc.; C. H. Davis, Prest.; C. G. Stebbins, V.-P.; J. S. Tarror, Secy.-Treas.

Fla., St. Petersburg.—City will vote on construction of electric-light plant; if voted affirmatively, will vote on \$150,000 bonds for construction. Address The Mayor.

Ga., Jefferson.—Jefferson Electric Co. (W. H. Smith and others) will establish city lighting system; develop 80 to 100 H. P.; contemplates opening construction bids in from 30 to 60 days; engineer not yet employed. (Lately noted incorporated.)

Ky., Lewisburg.—V. L. Price, owner of Lewisburg planing mill, will build electric-light plant to be operated in conjunction with mill.

Ky., New Haven.—City let contract Fairbanks, Morse & Co., Louisville, for equipment for electric-light plant; Chas. R. Helmer, Engr.

La., New Orleans.—St. Tammany, New Orleans & Ferry Co., Jos. Birg, Prest., will build power plant.

Miss., Hattiesburg.—City Comms. are considering construction of electric-light plant.

Miss., Jackson.—City defeated \$150,000 bonds to build electric-light and power plant. M. L. Culley, City Engr. (Lately noted.)

Mo., Mound City.—Mound City Electric Light & Ice Co. contemplates extending transmission lines to Maitland and Graham; R. W. Neill, Mgr.

Mo., Marshall.—City defeated lately-noted bonds for construction of electric plant.

Mo., Wheeling.—E. A. Lowe of Meadville, Mo., will install electric-light plant; probably secure electricity from Meadville transmission line; material purchased; D. L. Strongquist, Engr., Concordia, Kans.

N. C., Cary.—City, J. M. Templeton, Mayor, will issue bonds, not to exceed \$20,000, to install and equip electric-light plant.

N. C., Kinston.—City, Fred I. Sutton, Mayor, will make electric-light plant improvements; new equipment includes 300 K. W. generators, switchboard, engine, condenser, boilers; extend present buildings; bids until Apr. 6; Gilbert C. White, Consult. Engr., Charlotte, N. C. (See Machinery Wanted.)

N. C., Spencer.—City will construct electric light and power plant; 60 street lamps; contracted with Southern Power Co. (main office, Charlotte, N. C.) for electricity. Address The Mayor.

N. C., St. Pauls.—St. Pauls Light & Power Co., Opie Odum, Secy.-Treas., contemplates building transmission line to cotton mill and additional lines to other sections of city; also proposes to purchase transformers.

Okla., Kingston.—City contemplates voting Apr. 6 on granting franchise to Geo. F. Blenkins of Mansfield, Okla., for electric-light system.

Okla., Talihina.—City, A. B. Shibley, Mayor, is progressing with construction of electric plant for municipal lighting and to supply power to traction companies, etc.; this construction and water-works extension combined to cost \$15,000; Municipal Engineering & Contracting Co., Contr., Oklahoma City; equipment and machinery supplied.

Okla., Yale.—City, E. A. Pierson, Clerk, let contract Reinhardt-Donovan Co., Oklahoma City, for electric-light plant lately noted. (See Water-works.)

Tenn., Dresden.—City, R. L. Suddath, Mayor, will install electric-light plant; cost about \$10,000; includes power-house; now receiving machinery bids; Phil Porter, Engr., Clinton, Ky. (See Water-works and Machinery Wanted.)

Tenn., Germantown.—Town petitioned Legislature for authority to issue \$3000 bonds for electric-light plant. Address Town Clerk.

Tex., Cumby.—Cumby Electric Light Co. plans to rebuild electric-light plant lately reported burned.

Tex., Houston.—City will enlarge generators at water plant to cost \$30,000 to light bridges, city hall and auditorium. Ben Campbell, Mayor. (Lately noted.)

Tex., Mission.—City Comms. granted franchise to Hamilton & Horlock of Houston to build electric-light plant and water-works; estimated cost, \$80,000. (See Water-works.)

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Tex., Orange.—Orange Ice, Light & Water Co. contemplates installing 150-kilowatt generator and other equipment in electric-light plant.

Tex., Roxton.—Texas Power & Light Co., Dallas, contemplates installing electric-light system.

W. Va., Williamson.—Williamson Light & Ice Co., O. B. Welch, Mgr. (lately noted to rebuild burned electric and ice plant), will erect temporary plant at present, pending completion of transmission line of Tug River Power Co.; needs 80-ft. belt, also instruments for temporary switchboard. (See Machinery Wanted.)

FERTILIZER FACTORIES

Ga., Thomasville.—No Filler Fertilizer Co. is reported to build fertilizer mixing plant.

N. C., Winston-Salem.—Farmers' Union Agency Co. will install dairy feed-mixing machinery. (See Flour, Feed and Meal Mills.)

Va., Barber.—Barber Fertilizer Co. plans to double present capacity of 100 tons daily.

FLOUR, FEED AND MEAL MILLS

Ga., Augusta.—A. J. Martin interested in plan for 100 bbl. daily capacity flour and feed mill; also grain elevator; has not purchased machinery. (See Machinery Wanted.)

Ga., Hampton.—Harris Milling Co. will build lately-noted flour mill; daily capacity 50 bbls.; fireproof structure; building and machinery contracts closed; W. M. Harris, Prest.; R. M. Harris, V.-P. and Mgr.

Ky., Georgetown.—Frank Johnson is promoting organization of company with \$30,000 capital stock to refurbish and operate old Carley Mill; plant has turbine wheel and warehouse said to have capacity of 30,000 bus.

N. C., Wagram.—E. L. McNair is reported to build flour mill.

N. C., Winston-Salem.—Farmers' Union Agency Co. has plans by Humphreys & Faw, Winston-Salem, for supply building; mill construction; first story of concrete, with concrete floor; upper story of stucco; green asphalt slate shingle roof; building to cost \$700; install fertilizer-mixing plant on first floor; install grain elevator and machinery for mixing dairy feed; cost \$12,000 complete.

Va., Salem.—Kessler Milling Co., capital stock \$10,000, inceptd.; O. D. Kessler, Prest.; W. L. Oakes, Secy.-Treas.; takes over Salem Roller Mills, formerly operated by O. D. Kessler; manufacture flour, meal and feed.

Tenn., Germantown.—J. Wilson of Chicago will build mill, 15,000-bu. grain elevator and grain warehouse for Germantown Grain Co.; buildings will be 35x160 ft.

W. Va., Shepherdstown.—C. N. Whiting will erect lately-noted building; mill construction; 56x90 ft.; 3½ stories and basement; plans by Barnard & Leas Mfg. Co., Moline, Ill.; install flour, meal and feed machinery; daily capacity 125 bbls. flour; machinery contract placed.

FOUNDRY AND MACHINE PLANTS

D. C., Washington.—Machine Shop.—Washington Steel and Ordnance Co., P. O. Box 812, will erect machine shop at plant, Giesboro Point; 63.9x190 ft.; steel and concrete; corrugated-iron roof; electric power and light; cost about \$4000.

Fla., Fort Myers.—Machine Shop.—C. J. Raby of Fort Myers and R. W. Main of North Dakota are reported to have acquired water-front property on which to build storage-house and electrical repair shop; install electrical and machine equipment, and plans to engage in boat and engine repairing.

Ky., Paducah.—Textile Machinery.—F. W. Katterjohn let contract Gus Lockwood to erect building leased by Southern Textile Machinery Co.; plans by D. Harry Jamieson; machinery ordered and will install equipment, including milling machines, boring machines, punch presses, etc. (Lately noted.)

Miss., Meridian.—Uniform Asphalt Distributor Co. (lately noted inceptd., capital stock \$15,000) will conduct general contracting of highways with bituminous products, using special distributor. (See Miscellaneous Enterprises.)

Okla., Muskogee.—Farming Implements.—Eagle Hay Press & Implement Co., capital \$175,000, inceptd. by Fred V. Maddin, Tams Bixby and H. H. Ogden.

S. C., Spartanburg.—Roller Bearings.—Suspension Roller Bearing Co., capital \$10,000, organized; establish plant for manufacturing roller bearings; Isaac Andrews, Prest.; M. G. Stone, V.-P.; W. W. Lancaster, Secy.

Tenn., Memphis.—Cotton Machinery.—Southern Cotton Picker Co., capital stock

\$50,000, inceptd. by L. C. Struckenberg, T. E. Johnson, Phil W. Cannel and others.

Tex., Fort Worth.—Drilling Machinery.—J. C. Moore of Apache, Okla., and others contemplates installing plant to manufacture drilling machinery.

GAS AND OIL ENTERPRISES

La., Baton Rouge.—Oil Refinery.—Standard Oil Co., D. R. Weller, is reported as to double \$3,000,000 oil refinery; has 54 and will add 42 stills; steel construction, already ordered; begin work immediately, employing 1000 men.

La., Houston.—Texla Oil Co., capital stock \$50,000, inceptd.; E. A. Hawley, Prest.; J. H. Thompson, V.-P.; A. H. Smith, Secy.-Treas., all of Texas, Okla., and others.

La., Shreveport.—Red River Valley Oil Co., capital stock \$25,000, inceptd.; W. W. Blocker, Prest.; A. P. Prendergast, V.-P.; Frank Green, Secy.-Treas.

Okla., Madill.—Arbuckle Petroleum Co., capital stock \$80,000, inceptd. by W. S. Arrington, W. E. Hornaday and S. A. Apple.

Okla., McAlester.—Pattie H. Oil Co., capital stock \$5000, inceptd. by E. T. Richards, H. S. Cohn, J. C. Harby and L. B. Locke.

Okla., Okmulgee.—Oil Refinery.—Lake Park Refining Co., capital stock \$10,000, inceptd. by Chas. P. Gotwals, Ed Edmondson and F. Strange, all of Muskogee.

Tex., Austin.—Travis Oil Co., capital stock \$6000, inceptd. by R. M. Thomson, M. H. Reed and W. H. Badger.

Tex., Stamford.—Palo Pinto Oil Co., capital stock \$10,000, inceptd. by F. S. Hastings, P. P. Berthelot and A. J. Swenson.

Tex., Thrall.—First Thrall Oil Co., capital stock \$26,000, inceptd. by H. C. Vance, R. W. Wallis, T. D. Rountree and others.

Tex., Waxahachie.—Gladys Oil Co., capital stock \$24,000, inceptd. by W. A. Briggs, E. H. Briggs and A. M. Samuell.

into 2 parts; 3 upper floors to have capacity 40,000 to 42,000 bbls. apples; lower floor to have 4 units for local dealers to store meats, produce, eggs, etc.; insulate all floors, ceilings and walls with 3 to 6-in. coat cork; install machinery for ice manufacture and cold storage; electric power; icing platform for refrigerator cars; cost \$45,000 to \$50,000. (Lately noted.)

Va., Roanoke.—Citizens' Crystal Ice Co., capital stock \$50,000, inceptd.; W. E. Zieher, Prest., Reading, Pa.; G. W. Chaney, Secy.-Treas.

W. Va., Williamson.—Williamson Light & Ice Co., O. B. Welch, Mgr., will rebuild ice plant reported burned; erect temporary building of corrugated steel; later erect fireproof buildings; needs equipment; probably change from distilled to raw water. (See Machinery Wanted.)

LAND DEVELOPMENTS

Ala., Anniston.—Alexander Wall Amusement Co. is improving Oxford Lake Park; erect new buildings and install amusements, including "Figure Eight Flying Jenny," sand beach and skating rink; will also install at Hobson City Park similar buildings and amusements with exception of skating rink; wants sand. (See Machinery Wanted.)

Ala., Mobile.—South Orchards Development Co., capital stock \$35,000, inceptd.; T. L. Stevenson, Prest.; H. B. Wheelock, V.-P.; Mrs. F. L. Webster, Secy.; Geo. M. Strachan, Treas.

Fla., Miami.—Chas. E. Greening, J. H. Tatum and Walter Waldin will arrange for proposed development of bay front property between 1st St. and Miramar; build seawall, avenue, boulevard, etc.; later to be 100 ft. wide with parking in center.

Ky., Lexington.—Frank A. Bullock, County Judge, and others plan development of property comprising about 10 acres on East Main St. as residential section; divide into build-

Ky., Jenkins.—Greenbrier Lumber Co., capital \$20,000, inceptd. by W. S. Perry, N. H. Foerster and C. E. Blair.

Ky., Whitesburg.—West Virginia Stave & Lumber Co., Matoaka, W. Va., purchased timber land on Smoot Creek near Whitesburg and will develop; build stave mill under supervision of C. W. Hurst of Matoaka.

Miss., Lumberton.—Hinton Bros. Lumber Co. will rebuild sawmill, drykiln and shops reported burned at estimated loss of \$70,000.

N. C., Albemarle.—Miller Lumber Co., capital \$25,000, inceptd. by I. B. Miller, J. S. Eard and E. E. Snuggs.

N. C., Elizabeth City.—Cape Fear Cedar Co., capital stock \$10,000, inceptd. by J. D. Bizzell, W. D. Bizzell and L. N. Whitted.

Tex., Galveston.—Independent Lumber Co., capital stock \$5000, inceptd. by B. I. Sparks, Harry H. Scott and W. A. Eddins.

Va., Money Point.—Atlantic Coast Lumber Corp. will rebuild plant reported burned at estimated loss of \$200,000.

Va., Richmond.—Rose Hill Lumber Co., capital stock \$100,000, inceptd.; L. D. George, Prest., Penola, Va.; E. L. DeRaisne, Secy.; Richmond.

METAL-WORKING PLANTS

Tex., Houston.—Clothespins.—Ingersoll Patent Clothespin Co., 610 Girard St., organized; J. J. Schmidt, Prest.; John Walker, V.-P.; A. B. Poole, Secy.-Treas.; rent building at present; install machinery to manufacture wire clothespin; lately noted incorporated, capital stock \$15,000. (See Machinery Wanted.)

Va., Norfolk.—Silverware.—Hampton Roads Silver Co., E. C. Hathaway, Prest., lately noted inceptd. (under Miscellaneous Factories), capital stock \$100,000, and as purchasing plant formerly owned by Wm. A. Rogers, Ltd., will have daily capacity of 500 doz. knives, and could increase to 1000 doz. daily.

MINING

Ala., Holt.—Iron.—Central Iron & Coal Co. will rebuild engine-room reported burned at loss of \$10,000.

Ark., Yellville.—Zinc.—Iola Zinc Mining Co., capital \$50,000, inceptd. by Geo. A. Angel, A. M. Walters, S. H. Clark and others.

Fla., Quincy.—Fuller's Earth.—Floridin Co., Warren, Pa., will erect for fuller's-earth mining and handling plant buildings as follows: Mill 110x60 ft., wood; drying 125x50 ft., steel; power 45x35 ft., brick; daily capacity 100 tons; complete in June; cost \$60,000. (Lately noted having awarded all contracts for buildings and machinery; rebuild burned plant.)

Ga., Jasper.—Feldspar and Mica.—Southern Mineral Products Co. inceptd. with \$250,000 capital stock; absorb Georgia Mica Co.; build mica and feldspar refinery at Atlanta. (See Miscellaneous Enterprises, Ga., Atlanta, Georgia Mica Co. lately noted to develop 160 acres, etc.)

Ky., Edmonson County.—Asphaltic Rock.—Premier Asphalt Co. organized; offices at 837 Leader Bldg., Cleveland, O.; directors, J. B. Coffinberry, G. S. Beckwith and Donald McBride of Cleveland, Oscar F. Barrett of Cincinnati, O.; M. J. Sebolt and Geo. H. Wilson of Louisville, and L. V. Uncapher of Marion, O.; develop 2300 acres (on navigable water) estimated to contain 60,000 tons asphaltic rock per acre; install first unit for daily capacity 800 tons road foundation material and 600 tons pulverized surfacing material; estimated cost this unit \$35,000. (Lately noted inceptd. with \$500,000 capitalization, etc.)

Mo., Joplin.—Lead and Zinc.—Purceller Lead & Zinc Mining Co. inceptd. by Jas. Purceller, T. O. Vest, E. B. Leslie and others.

Mo., Joplin.—Lead and Zinc.—W. E. Ammons of Bentonville, Ark.; is reported to have leased 18 acres mining land in Joplin district and to undertake development.

N. C., Waxhaw.—Gold.—Howie Mining Co., 763 Calvert Bldg., Baltimore, Md., plans completion of installation 40 stamps, 10 being now in operation; is developing 273 acres; report states ore body is about 800 ft. wide and extends 2 mi.

Va., Salem.—Kessler Milling Co. (lately noted) will operate flour, feed and meal plant. (See Flour, Feed and Meal Mills.)

W. Va., Charleston.—Lead and Zinc.—Kanawha Lead & Zinc Co., capital \$30,000, inceptd. by J. D. Woodroem, E. V. Evans, E. H. Wilford and others.

MISCELLANEOUS CONSTRUCTION

Ala., Tuscaloosa.—Wharf.—City is reported as planning to build freight wharf on Warrior River; dock 2 barges at one time; cost \$15,000 to \$20,000; probably issue bonds.

PROPOSAL ADVERTISEMENTS

IN THIS ISSUE

PUBLISHED ON PAGES 66 and 67

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W. Va., Clarksburg.—Union Oil Co., capital \$50,000, inceptd. by John Flint, Carl H. Holy, P. L. Raymond and others.

W. Va., Rosedale.—Steer Creek Oil & Gas Co., capital \$16,000, inceptd. by C. D. Frame, Harry H. Frame, C. V. Wilson and others, all of Gassaway, W. Va.

W. Va., Wheeling.—Pleasants Natural Gas Co., 1209 Market St., inceptd. with \$25,000 capital stock by Wm. G. Hamilton of Wheeling, G. H. Ritchie and Norman A. Ritchie of Kenwood Place, Wheeling, and others.

ICE AND COLD-STORAGE PLANTS

Ga., Columbus.—Sol Loeb is having plans prepared for cold-storage and packing plant.

Ga., Macon.—Armour & Co. (main office Chicago) let contract T. S. Mouly & Co. of Chattanooga, Tenn., to build cold-storage plant and warehouse; reinforced concrete; exterior of brick, with stone trimmings; 3 stories and basement; cost \$50,000.

Miss., Macon.—Imperial Cotton Oil Co. will build ice plant; brick and concrete; concrete floor; cost of building and equipment \$20,000; equipment and building material purchased; E. T. George to be in charge.

Miss., Meridian.—Swift & Co. (main office Chicago, Ill.) are reported to have let contract Standard Construction Co. of Meridian to remodel building; install cold-storage equipment.

S. C., Honea Path.—City contemplates installing ice plant in connection with electric-light and water-works plants; J. A. Featherstone, Supt.

Tex., Mission.—Hamilton & Horlock of Houston will build 20-ton ice plant to cost \$20,000. (See Water-works.)

Va., Staunton.—Rothwell & Co., Martinsburg, W. Va., completed arrangements for cold-storage plant and ice manufacturing; will utilize 4-story brick building; divide

ing lots, construct streets, etc.; White Gwyn, City Engr., is preparing plat.

Mo., Kansas City.—R. L. Winter & Co. will develop 40 acres as residential section—Maryland Addition; contains 280 35-ft. lots; expend \$60,000 for street paving, curbs and sidewalks.

S. C., Union.—City, L. C. Wharton, Mayor, contemplates converting 15-acre lot near courthouse into park; will install culvert in running branch and level the ground across same; erect 50x100-ft. swimming pool, with shower baths and dressing-rooms; construct baseball ground.

Tenn., Mountain City.—Shady Farm Co., capital stock \$10,000, inceptd. by R. E. H. A., D. H. and C. C. Donnelly and others.

Tenn., Nashville.—J. H. Ferring of St. Louis purchased Maplewood, on Gallatin Rd., comprising 1154 acres, and will probably further develop.

Va., Roanoke.—Brooklawn Farms, H. C. Elliott, Prest., owns 164 acres fruit and dairy land on Williamson Rd. in Roanoke county and 83 acres apple orchard 1 mi. from Daleville on Tinker Creek; will raise cattle and develop fruit orchard. (Lately noted inceptd. with \$50,000 capital stock.)

LUMBER MANUFACTURING

Ga., Westlake.—Carolina Lumber Co., Cochran, Ga., lately noted (under Ga., Macon) inceptd., capital stock \$32,000, organized; T. J. Lattimore, Prest. and Mgr.; Forts Beam, V.-P.; J. L. Sparks, Secy.; W. H. Lattimore, Treas.; will erect ordinary construction building; install machinery, cost \$5000.

Ky., Pikeville.—Pikeville Supply & Planing Mill Co., capital stock \$15,000, inceptd. by J. L. Morgan, J. E. Ratcliff, J. F. Pauley and others; will build planing mill.

D. C. Washington—Concrete Wall.—U. S. Office of Public Buildings and Grounds, Col. Wm. W. Harts in charge, let contract to Boyle-Robertson Construction Co., 1416 H St. N. W., Washington, to erect concrete retaining wall at Meridian Hill Park, 16th and W Sts.; 1500 ft. by average 8 ft. high by average thickness 3 ft., base 1½ ft. top; reinforcing steel construction; cost \$23,397. (Lately noted as receiving bids.)

Fla., Pensacola—Docks.—Gulf, Florida & Alabama Ry., H. A. Berry, Ch. Engr., Pensacola, is having plans prepared to complete docks and construct coaling dock.

Fla., Passagrille—Seawall.—City let contract to build seawall. Address The Mayor, (See Road and Street Work.)

Fla., St. Petersburg—Seawall.—City let contract Mutual Co., St. Petersburg, for first 20 ft. of 1800-ft. seawall; concrete; average height 30 ft.; C. C. Whitaker, Atlanta, Ga., Consult. Engr.; J. O. Spencer, City Engr.

La., New Orleans—Earthwork.—Govt. will construct 399,000 cu. yds. earthwork in Lower Tensas and Atchafalaya Levee Dist.; bids until Mch. 25; W. G. Caples, Maj., Engrs. Queen & Crescent Bldg. (See Machinery Wanted.)

N. C., Wilmington—Gates.—Oakdale Cemetery Co. let contract for entrance to Oakdale Cemetery to cost \$2500; Rhodes & Underwood secured contract for stone and brick work and erection of frame lodgehouse and Wilmington Iron Works for ornamental gates; Jas. F. Gause, Archt., will have general supervision.

S. C., Union—Swimming Pool.—City, L. C. Wharton, Mayor, will build 50x100-ft. swimming pool, with shower baths and dressing rooms. (See Land Developments.)

Tex., Beaumont—Magnolia Petroleum Co. will construct 1000 ft. of concrete wharves designed to handle oil shipments. (Lately noted.)

Tex., Houston—Wharf and Warehouse.—City contract (lately noted) to Horton & Horton, Box 1454 for first unit of docks on which city contemplates expenditure of about \$3,000,000 within next two years, calls for 650 lin. ft. crescent wharf on Houston Ship Channel and reinforced concrete 1-story warehouse 425 ft. long and 100 ft. wide; cost \$150,000; machinery and material bids all let; E. E. Sands, City Engr.

Va., Wallace—Wall.—Norfolk & Western Ry., J. E. Crawford, Ch. Engr., Roanoke, is reported to build wall along track for ½ mi.

MISCELLANEOUS ENTERPRISES

Ala., Celeste, P. O. at Mobile—Livestock.—Celeste Livestock Co., capital \$20,000, inceptd.; Chas. F. Peters, Pres.; Wm. C. Paul, Treas.; Chas. C. Paul, Secy.

Ala., Mobile—Livestock.—Celeste Livestock Co., capital stock \$20,000, inceptd.; Chas. F. Peters, Pres.; Wm. C. Paul, Treas.; Chas. C. Paul, Secy.

Ga., Albany—Abattoir.—City will erect 1-story and basement reinforced-concrete abattoir building; receives bids at Mayor's office, City Hall, until Mch. 19 for construction, including plumbing, drainage and electric wiring; M. W. Tift, Chmn. Health Com. (Lately noted.)

Ga., Atlanta—Gold Smelter.—G. W. Dozier, Dawson, Ga., and Edgar S. Moulton, Chicago, plan construction \$200,000 gold smelter; 100 tons daily capacity.

Ga., Atlanta—Feldspar and Mica Refinery.—Southern Mineral Products Co., \$250,000 capital stock, inceptd. by D. L. Pitzer and others; absorb Georgia Mica Co., Jasper, Ga.; financed by English capitalists; build refinery (at Atlanta) for feldspar and mica; purchased machinery. (See Mining.)

Ga., Augusta—Grain Elevator.—A. J. Martin interested in plan to install grain elevator. See Flour, Feed and Meal Mills.)

Ga., Macon—Construction.—E. L. Oliver Construction Co., capital stock \$5000, inceptd. by E. L. Oliver, Francis E. Oliver and G. L. Oliver.

Ga., Rome—Fire-alarm System.—Crescent Fire-Alarm Co., capital stock \$10,000, inceptd. by Abner F. Selman and Bertie S. Harrington.

Ky., Louisville—Construction.—General Construction Co., capital stock \$25,000, incorporated by C. C. and G. Y. Heatt, H. J. Scheirich and H. M. Johnson.

Ky., Louisville—Contracting.—Heatt Bros., capital stock \$10,000, inceptd. by C. C. and G. Y. Heatt, H. J. Scheirich and H. M. Johnson.

Ky., Louisville—Engraving.—Stationers' Engraving & Mfg. Co., capital stock \$1000, inceptd. by John Manly, A. S. Newhall and Fred Diefenbach.

Ky., Maysville—Creamery.—Chas. M. Doo-ley let contracts for machinery to equip creamery; occupy portion of 60x25-ft. brick and steel building to be erected by Knights of St. John; install churn, ripener, ice-cream freezer, gas equipment for steam power, electric drive, etc., costing \$3000; manufacture butter, ice-cream, cheese, etc. (Lately noted.)

Ky., Vine Grove—Printing.—Sentinel Printing Co. inceptd. by R. N. Riley, F. L. Woodring, W. E. Crutcher and others.

La., Hellenburg (not a postoffice)—Amusement Park.—St. Tammany, New Orleans & Ferry Co., Jos. Birg, Pres., New Orleans, La., will build amusement park; improvements will include swimming pool 60x120 ft., supplied with water from artesian well having daily flow of 25,000 bbls.

Miss., Meridian—Contracting.—Uniform Asphalt Distributor Co., N. V. Hendricks, Mgr., inceptd., capital stock \$15,000; will conduct general contracting of roads with bituminous products with distributor especially designed to handle heaviest grades liquid asphalt.

Mo., St. Louis—Dairy.—Purity Dairy Co., capital stock \$6000, inceptd. by Emil Ferris, Anna Ferris and F. W. Kiler.

Mo., St. Louis—Laundry.—Klag Laundry Co., capital stock \$15,000, inceptd. by Arthur H. Feuerbacher, Theo. Klages and Max R. Orthwein.

N. C., Winston-Salem—Grain Elevator.—Farmers' Union Agency Co. will install grain elevator. (See Flour, Feed and Meal Mills.)

Okla., Enid—Grain Elevator.—A. E. Stephenson's lately-noted grain elevator will be 36x48 ft.; 40 ft. high; iron roof and sides; capacity 25,000 bus.; electrical machinery; building and machinery to cost \$7500; handle wheat; Fred. C. Smith, Mgr.

S. C., Columbia—Printing.—Richland Lodge No. 39, A. F. and A. M., will erect 6-story building with annex in rear to replace burned structure; annex to be 2 stories, fireproof, 36x50 ft., and be equipped as printing plant by R. L. Bryan Co. (See Building Proposed, under Association and Fraternal.)

S. C., Greenville—Crematory.—City will install additional crematory; cost \$3500. Address The Mayor.

Tenn., Chattanooga—Printing.—Arcade Printing Co., capital stock \$5000, inceptd. by Arch Fairley, D. A. Caruth, S. E. Behn and others; will continue established plant.

Tenn., Memphis—Laundry.—G. Mohr & Sons will erect laundry at 902-904 Madison Ave.; 1 story and basement; brick; cost \$6400.

Tenn., Nashville—Construction.—C. H. Butler Co., capital stock \$10,000, inceptd. by H. E. Richardson, W. H. Wharley, C. H. Butler, Sr., and others.

Tex., Austin—Engraving.—Capital Engraving Co., capital stock \$5000, is being organized by Will L. Vining, 418 Littlefield Bldg., and others; plans to build engraving plant costing \$3000.

Tex., Fort Worth—Abattoir.—City plans to build abattoir; F. J. von Zuben, City Engr. (Lately noted.)

MISCELLANEOUS FACTORIES

Ark., Mena—Peanut Butter.—A. L. Kirby interested in plan to manufacture peanut butter; has not purchased machinery. (See Machinery Wanted.)

D. C., Washington—Laboratory.—National Chemical Laboratories Corp. (lately noted) chartered, capital \$25,000 organized; A. H. McKnight, 3935 7th St. N. W., Pres.; H. W. Thompson, V. P.; Melville R. Walton, Secy.; Harry W. Thompson, Mgr.; will install chemical apparatus. (See Machinery Wanted.)

Fla., Andrews—Chemicals.—Cherokee Chemical Co., capital stock \$125,000, inceptd. by J. D. Howard and others; will build plant to grind, mix and prepare various specialties, including insecticides and polishing materials; acquired mine of decomposed silica to be basis of several products.

Fla., Ocala—Washboards.—A. C. Cobb, D. W. Tompkins and L. W. Duvall are reported as contemplating erection of plant to manufacture washboards from corncobs.

Ga., Savannah—Peanut.—Edgar O. Oetgen Co., City Market Bldg., expects to install peanut roaster.

Ga., Savannah—Timber Products.—Timber Products Co., authorized capital \$1,000,000, inceptd. by A. E. Corkins, J. T. McAndrew, W. C. Hager and others.

Ky., Louisville.—General Specialties Co., capital stock \$5000, inceptd. by John F. Beard, Geo. T. Weller and David A. Keller.

Ky., Louisville—Paper Boxes.—Frank A. Menne Candy Co., Hancock and Madison Sts., will rebuild paper-box factory reported burned at estimated loss of \$15,000 to \$20,000; machinery to be repaired.

Ky., Louisville—Inventions.—Commonwealth Invention Syndicate, capital stock \$30,000, inceptd. by M. C. Fullenlove of Louisville, L. L. Bristow of Georgetown, Ky., and John P. Haswell, Jr., of Hardinsburg, Ky.

Ky., Maysville—Ice Cream.—Chas. M. Doo-ley will install equipment for manufacturing ice cream, butter, etc. (See Miscellaneous Enterprises.)

La., Morrow—Moss Gin.—E. D. Fisher will build moss gin in St. Landry parish; gin to be operated by gasoline power. (See Machinery Wanted.)

Md., Baltimore—Bakery.—Mrs. Katherine Rokos let contract to Edward Watters & Co., 509 N. Charles St., Baltimore, to remodel bakery building at 1612 8 Barnes St.; cost \$3000; no mechanical improvements.

Mo., Kansas City—Art Glass.—Associated Glass Workers' Co. organized with Francis C. Anderson, Pres.; leased 1-story building at 1308 Walnut St.; erect addition in rear.

Mo., Maplewood—Washing Machines.—Almetal Mfg. Co., 227 Manchester Ave., St. Louis, Mo., organized; N. N. Nunn, Pres.; Mgr.: Leslie P. Huey, Secy.-Treas.; leased building; will manufacture washing machines; present output, hand-operated machines only; contemplates production of water motor and electric motor-operated machines. (Lately noted inceptd., capital \$6000.)

Mo., Kansas City—Tooth Brushes.—Gatlin Rotary Tooth Brush Co., 402 Orear-Leslie Bldg., will establish plant to manufacture rotary tooth brush invented by H. W. Gatlin; factory to have 14,000 sq. ft. space.

Mo., St. Louis—Soap and Disinfectant.—Vestal Liquid Soap & Disinfectant Co., capital stock \$7500, inceptd. by W. M. Chipler, F. J. Pollnow, Mary C. Cryssler and others.

Mo., St. Louis—Wall Coping.—C. Chas. Mueller is reported to establish plant to manufacture patent wall coping of tile to prevent fire walls and side walls of flat-roof buildings becoming stained and water-soaked by rain.

N. C., Winston-Salem—Chemicals.—Yerkes Chemical Co., capital stock \$50,000, inceptd. by J. H. McLelland, O. W. Baynes and N. W. Sjöere.

Okla., Tulsa—Pens.—Perforating Pen Co., capital \$10,000, inceptd. by T. J. Hartman, E. J. Newblock and L. M. Bowman.

S. C., Charleston—Tag-stamping Machinery.—W. W. Fuller Corp., capital stock \$5000, inceptd. by G. J. McDowell and H. L. Erickman to manufacture machines for stamping tags.

S. C., Columbia—Cartons.—Sanitary & Aseptic Package Co., capital stock \$10,000, inceptd. by Paul A. Schulz and others to manufacture containers for absorbent cotton.

S. C., Columbia—Bottling.—H. D. & J. K. Crosswell, 1115 Gervais St., inceptd. by J. K. Crosswell and S. W. Crosswell to bottle soda waters, syrups, etc.

Tex., San Antonio—Silos.—Safety Silo & Feeding Co., capital stock \$1000, inceptd. by G. S. Andres, C. H. Florian and C. H. Florian, Jr.

Va., Norfolk—Stock Food and Remedy.—Dr. Black Stock Food & Remedy Co., capital stock \$25,000, inceptd.; Dr. W. G. Black, Pres.; E. A. Stone, Secy.-Treas.

Va., Norfolk—Bottling.—Norfolk Pepsi-Cola Bottling Co., capital \$7500, inceptd.; A. F. Moses, Pres.; B. D. Melcher, Secy.-Treas.

Va., Petersburg—Composition Brick.—Andrews Cautchouc Paving Brick Co., 33 Bollingbrook St., under new control will be offered as follows: I. C. Shore, Pres.; W. J. Purdy, V. P.; Wallace D. Blanks, Secy.-Treas.; M. P. Andrews, Mgr.; contemplates manufacture of patented paving brick from sawdust and asphalt; needs machinery. (Lately noted under Machinery Wanted.)

Va., Portsmouth—Medicine.—Gul-a-col Medicine Co. increased capital stock from \$50,000 to \$100,000.

Va., Portsmouth—Ice-Cream.—Chas. R. Welton and E. Thompson, Jr., will erect factory building for Premier Ice Cream Co.; 2 stories; 25x60 ft.; brick.

Va., Richmond—Candy.—Fleming & Christian Co. let contract to J. T. Nuckols, Richmond, to erect building at 15th and Franklin Sts. for manufacturing and jobbing; 80x80 ft.; ordinary construction; slag roof; cost \$24,000 complete; Carneal & Johnston, Archts., Richmond. (Lately noted under Warehouses.)

Va., Staunton—Dairy Products.—Staunton Dairy Products Corp., capital stock \$10,000, inceptd.; R. G. Kolner, Pres.; R. A. Suttler, V. P.; Geo. A. Smith, Secy. and Mgr.; C. H. Caldwell, Treas.; acquires Augusta County Creamery; plans enlargement and installation of additional machinery; also equip to manufacture ice-cream. (See Machinery Wanted.)

MOTORS AND GARAGES

Ga., Atlanta—Garage.—R. M. Abernathy & Co. will build brick garage at 233 Lucile St.; day work; cost \$3000.

Ky., Auburndale, P. O. at Louisville.—Auburndale Motor Power Co., capital stock \$1000, inceptd. by F. G. Becker, Fred Stone, J. B. Gordon and others to transport freight and passengers outside of Louisville.

Ky., Louisville—Automobile Line.—Big Jitney Co. inceptd. by Sam Olson, Albert C. Thompson, Florence W. Cecil and Effie P. Olson.

La., New Orleans—Automobile Line.—Jitneymobile Co., 701 Audubon Bldg. (lately noted inceptd., capital stock \$300,000), organized; Robt. S. Browning, Pres.; L. Edward Clark, V. P. and Treas.; F. F. Philibert, Secy. and Mgr.; later contemplates building factory of concrete construction; has placed contracts for 100 trucks and for 100 bodies of 30-passenger capacity; contemplates operation in several Southern cities.

Mo., St. Louis—Motors.—Carter Motors Co., 2638 N. Spring Ave. (lately noted incorporated, capital stock \$3000, by C. O. Baxter and others), is holding company, owning Carter Motor patents, which are manufactured by Pittsburgh Model Engine Co. under royalty contract.

N. C., North Wilkesboro—Automobiles.—Yadkin Valley Motor Co. (lately noted incorporated, capital stock \$25,000) organized with Chas. C. Smoot, Pres.; F. G. Harper, Secy., Treas. and Mgr.; rent building; install gasoline engine, lathe, etc.; deal in and repair automobiles.

N. C., Sulphur Springs—Automobile Line.—Co-operative Automobile Co., capital \$15,000, inceptd. by Dr. P. R. Moale and J. C. Penland of Asheville and Otto Maler of New Orleans; will operate automobile line from end of West Asheville car line to Sulphur Springs.

Okla., Okene—Garage.—Geo. F. Dusbabek, E. side Maine St., will erect \$3500 garage and hall building; 2 stories; 50x50 ft.; asphalt roof; electric lights.

Tenn., Bristol—Garage.—Shelby Auto Co. let contract for construction of 50x55-ft. building; brick; plate-glass front, metal-glass setting, composition roof; metal ceiling; plans by Clarence B. Kewfott, Galloway Bldg., Bristol, Tenn.

Tex., Austin—Automobiles.—Capital City Auto Co., capital stock \$8000, inceptd. by W. M. Graham, H. H. Taylor and L. S. Houston.

Tex., El Paso—Garage.—Perry & Kirkpatrick will erect 3-story brick building, 100x120 ft., costing \$10,000, to be occupied by Lone Star Motor Co.

Va., Norfolk—Automobiles.—Motor Sales & Service Co., capital \$25,000, inceptd.; R. C. Taylor, Pres.; E. Y. Springer, Secy.

Va., Richmond—Automobiles.—Farmack Motor Car Corp., capital stock \$3000, chartered; Albert J. Farmer, Pres.; J. L. Grossman, V. P.; M. Montrose McIntyre, Secy.-Treas., all of Chicago, Ill.

Va., Rosslyn—Automobiles.—Virginia Auto Service Co., capital stock \$25,000, inceptd.; Harry H. Fones, Pres., Rosslyn; Jas. H. Knott, Secy.-Treas., Washington, D. C.

W. Va., Huntington—Automobile Line.—Jitney Transportation Co., capital stock \$15,000, inceptd. by W. P. Floyd and G. L. Titus of Huntington and C. N. Miller of Chillicothe, O.

ROAD AND STREET WORK

Ala., Tuscaloosa.—Tuscaloosa county will construct roads leading out of Tuscaloosa and Northport; expend \$40,000; construction in charge of W. S. Keller, State Highway Engr., Montgomery.

Ark., Conway.—City plans to organize fourth street-paving district to provide for paving west side of public square from Oak to Main St., Main St. to Locust Ave., Locust Ave. to College Ave., etc. Address The Mayor.

D. C., Washington.—District Commrs. will expend \$135,950 for pavement resurfacing on 28 streets and avenues.

Fla., Auburndale.—City and property owners plan to improve Lakeshore Drive from Seminole Club to Winona Park, 4225 ft.; about \$1000 available. Address The Mayor.

Fla., Bradentown.—Manatee County Sarasota-Venice Road and Bridge Dist. voted \$250,000 bonds for road and bridge construction. Address E. C. Bruce. (Lately noted.)

Fla., Bradentown.—City will grade Fairview Ave. from Stanton St. to Manatee River (width 20 ft.) and Chandler St. from Florida Ave. to Broad St. (width 30 ft.), both to be curbed on both sides with cement curbing; also grade Ohio Ave. from Richmond to Sarasota Ave. (width 24 ft.) and curb on both sides with granite curbing; W. H. Tracy, Commr. Public Works, receives bids until Mch. 19. (See Machinery Wanted.)

Fla., Fort Meyers.—Lee County Comms. are considering \$100,000 bond issue to construct road from Fort Myers to Marco.

Fla., Gulfport.—City plans to pave about 50,000 sq. ft. sidewalks. Address The Mayor.

Fla., Hastings.—City will grade, curb and pave streets with vitrified brick; about 5308.2 sq. yds. paving; bids let this week; R. M. Burt, Mayor.

Fla., Passagrille.—City let contract Weiss & Bender of Pinellas Park, Fla., to construct about 1 mi. of sidewalk; also let contract to build seawall; total cost, \$4000.

Fla., Sanford.—City will pave Magnolia Ave. with vitrified brick. Address The Mayor.

Ga., Dalton.—City let contract W. M. Haig at \$1239 to pave and repair portions of N. Hamilton and E. Morris Sts. and Chattanooga Ave., total of 4920 lin. ft.; 6 in. of chert surfacing.

Ga., Macon.—City voted \$120,000 bonds to pave streets; J. J. Gallord, City Engr. (Noted in January.)

La., Thibodaux.—Terrebonne Parish Police Jury passed ordinance authorizing \$105,000 bond issue for gravel roads in Road Dist. No. 1.

Ky., Brooksville.—Bracken county votes June 15 on \$400,000 bonds to construct roads. Address County Comms. (Lately noted.)

Ky., Hickman.—Fulton county votes May 22 on \$300,000 bonds to construct 212 mi. of gravel roads. Address County Comms. (Lately noted.)

Ky., Louisville.—Lawrence County Comms. postponed election from Mch. 15 to vote on \$100,000 bonds to construct roads. (Lately noted.)

Ky., Louisville.—City will construct 7200 yds. of concrete sidewalks; estimated cost, \$8600; Board of Public Works receives bids until Mch. 25.

Ky., Paducah.—McCracken county will not vote on bonds to construct roads. (Recent report incorrect.)

Ky., Tompkinsville.—Monroe county votes May 15 on \$100,000 bonds to construct roads. Address County Comms.

La., Covington.—Highway Dept., Board of State Engrs., Room 104 New Orleans Court Bldg., New Orleans, invites bids until Mch. 20 to construct about 26 mi. main public highway from Covington to Slidell; W. E. Atkinson, State Highway Engr., New Orleans. (See Machinery Wanted.)

La., Jennings.—City voted \$75,000 bonds to macadamize streets; John Gamble, Mayor. (Lately noted.)

La., Oberlin.—City, J. B. Darbonne, Mayor, will gravel the main street from Iron Mountain depot to the Court, about 800,000 sq. ft.; will advertise bids; also ask bids within few days on 4 mi. concrete sidewalks.

La., Thibodaux.—Lafourche Parish Road Dist. No. 2 votes Apr. 22 on \$80,000 bonds to hard surface road on east bank of Bayou Lafourche from Theriot Canal, near Raceland, to upper end of parish.

Md., Baltimore.—City let contract No. 112 to P. Flanigan & Sons, 120 E. Lexington St., at \$94,356; streets include Pitcher, Poppleton and Pearl Sts., Bennett Pl., Arlington, Rutland and Ashland Aves., etc.; 49,100 sq. yds. sheet asphalt, 6900 sq. yds. vitrified brick and 1000 sq. yds. granite block; R. Keith Compton, Chrmn. and Consult. Engr. Paving Com. (Call for bids lately noted.)

Md., Cumberland.—City, Dr. Thos. W. Koon, Mayor, asks bids until Apr. 5 to construct previously noted streets; 16 streets, brick on concrete base; about 57,000 sq. yds., requiring about 2,500,000 bricks; bids as whole or separate; Jas. P. Gaffney, City Engr. (See Machinery Wanted.)

Md., Towson.—Baltimore County Comms. will widen and improve Roland Ave. from Deepdene Rd. to Lake Ave.; widen to 106 ft.; 10-ft. sidewalk on each side and two 29-ft. driveways; concrete foundation; asphalt surface; parking, 25 ft. wide, in center; estimated cost \$68,000.

Miss., Charleston.—Supvrs. Tallahatchie

County plan to issue \$30,000 bonds to construct roads in Dist. No. 2.

Miss., Holly Springs.—City, Albert Herr, Mayor, will pave streets; engaged N. B. Buchanan, City Engr. of Tupelo, Miss., to make surveys; about 1 1/4 mi.; \$15,000 available.

Miss., Meridian.—Lauderdale County Supvrs. are considering construction of roads to connect with paved streets; \$50,000 bonds issued.

Miss., Meridian.—Lauderdale county will construct 6 or 8 mi. asphalt macadam roads; \$50,000 available; date of opening bids not set; W. P. Moore, County Engr. (Bonds previously noted.)

Miss., Vicksburg.—Warren county road construction under contract to Owens Construction Co., Vicksburg, is progressing; cost about \$160,000; 24 mi.; roads 16 to 12 ft. wide; construction begun July, 1914; completion July or August, 1915. (These and other Warren county road-construction bids and contracts previously noted.)

N. C., Albemarle.—City plans to pave streets with bitulithic or other material; issue bonds. Address The Mayor.

N. C., Bryson City.—Swain County Highway Comms. will issue \$100,000 bonds for road construction.

N. C., Durham.—City petitioned Legislature for authority to issue \$300,000 bonds to improve streets. Address The Mayor.

N. C., Lexington.—Davidson County Commissioners have legislative authority to issue \$300,000 bonds to construct roads.

N. C., Pittsboro.—Chatham county, Center township, voted \$50,000 bonds to construct roads. Address County Comms. (Lately noted.)

N. C., Taylorsville.—Alexander county voted \$150,000 bonds to construct roads. Address County Comms. (Lately noted.)

N. C., Wilmington.—New Hanover County Comms., Wilmington Beach Corp., New Hanover Transit Co. and Kure Land & Development Co. let contract C. R. Humphreys of Wilmington at \$33,439.95 to extend Federal Point Rd., 7 1/2 mi.; specifications call for hard road 10 ft. wide and 8 in. thick; grading completed by county convict forces. (Lately noted.)

Okla., Durant.—City let contract Ammons & Baum of Durant at \$22,754.90 to construct 12 blocks paving on Main St.; 17,600 sq. yds. water-bound macadam with oil surface; 8800 ft. curb and gutter; B. M. Head, City Clerk. (Call for bids lately noted.)

Okla., Tulsa.—City will pave portions of Denver Ave., Jefferson St., Utica Ave., Trenton Ave., etc.; City Comms. receive bids until Mch. 22; E. B. Cline, City Auditor. (See Machinery Wanted.)

S. C., Aiken.—Aiken county will grade and surface with sand-clay South Carolina post road from corporate limits of Aiken to Aiken-Edgefield county line, 11 1/2 mi.; 27,500 cu. yds. excavation and 18,000 cu. yds. sand-clay surfacing; bids received at office U. S. Highway Engr., Western Carolina Bank Bldg., Aiken, until Apr. 2; John Staubes, Ch. Commr. (See Machinery Wanted.)

S. C., Chester.—Chester County Comms. will issue \$18,000 bonds to improve roads, bridges, etc.

S. C., Greenville.—City Council voted \$125,000 bonds to improve Spring and Summer Sts., mainly for asphalt and cement pavements and sidewalks; will construct about 20,000 sq. yds. street paving and 5000 sq. yds. sidewalks; also granite curb, cement curb and gutter and brick gutters; bids until Mch. 30; C. P. Ballenger, City Engr.; John B. Marshall, Mayor. (See Machinery Wanted.)

S. C., Sumter.—Sumter county bonds (\$10,000), lately noted, will be expended for bridge construction. (See Bridges, Culverts, Viaducts.)

Tenn., Selmer.—City will lay concrete sidewalk on south side Cypress Ave. from Mobile & Ohio R. R. to 7th St.; about 10,000 sq. ft.; \$2000 available; open bids Apr. 10; D. T. Smith, Engr. (See Machinery Wanted.)

Tex., Cameron.—Milam County Road Dist. No. 6 sold \$100,000 bonds to construct roads; will soon invite construction bids. Address County Comms.

Tex., Cameron.—City will pave streets by day labor; issued \$15,000 bonds. Address The Mayor. (Noted in Feb.)

Tex., Carrizo Springs.—Dimmit County Road Dist. No. 1 votes Apr. 3 on bonds to construct macadam, gravel or paved roads. Address County Comms.

Tex., Corsicana.—City will pave sections of W. 2d, E. 5th and E. 7th Aves.; material to be bitulithic on 5-in. gravel concrete foundation, brick on concrete foundation, asphalt macadam, asphaltic concrete, rock asphalt, concrete curbs, concrete gutters 18 in. wide, concrete gutters 24 in. wide, combination concrete curbs and gutters; J. A. Harper, City Secy., invites bids until Mch. 22. (See Machinery Wanted.)

Tex., Fort Worth.—Tarrant county votes Apr. 6 on \$200,000 bonds to construct roads. Address County Comms.

Tex., Franklin.—Robertson County Road Dist. No. 5, S. M. Peters, Secy. Special Road Board, let contract Jucksch & McCoy, Bremond, Tex., to construct 50 mi. sand-clay road; \$100,000 available; Engrs., Robt. J. Potts and R. B. Pearce, Bremond, Tex. (Bids lately noted.)

Tex., Giddings.—City let contract to gravel 15 blocks of streets. Address The Mayor.

Tex., Kountze.—Hardin County Road Dist. No. 1 will build 35 or 40 mi. road; details not decided and engineer not employed; J. S. Jackson, official in charge. (Lately noted voting \$150,000 bonds.)

Tex., Marshall.—Harrison County Road Dist. No. 1 asks bids until Apr. 6 to construct about 20 mi. graveled and macadam highway; N. P. Turner, Highway Engr., Marshall; lately noted. (See Machinery Wanted.)

Tex., Pecos.—Reeves County Comms. Court engaged W. P. Bullock of Kansas City as engineer in charge of constructing roads in Dist. No. 1; about 65 mi. grading, of which about 30 mi. may be gravel surfaced; \$100,000 bonds issued. (Noted in Jan.)

Tex., Polytechnic.—City will grade and gravel Ave. D, Ave. A, McKinzie St., Ave. H and other streets; City Com. invites bids until Mch. 22; W. H. Brown, City Secy. (See Machinery Wanted.)

Tex., Port Lavaca.—Calhoun County Road Dist. No. 2 votes Apr. 10 on \$35,000 bonds to construct roads. Address County Comms.

Tex., Sherman.—Grayson County Comms. postponed election from Apr. 10 to Apr. 17 to vote on \$900,000 bonds to construct 200 mi. macadam and gravel roads. (Lately noted.)

Va., Richmond.—Henrico county will grade, drain and improve (water-bound macadam) Hermitage Rd. between Richmond city limits and Bloomingdale, .63 mi.; also Chamberlayne Ave., Norwood Ave. and Brook Turnpike from Richmond city limits to Solomon's store, 3.43 mi.; grade, drain and improve with gravel surface 3.38 mi. Newmarket Rd.; County Supvrs. receive bids until Mch. 26; G. P. Coleman, State Highway Commr. (See Machinery Wanted.)

Va., Staunton.—Augusta county will place bituminous binder on entire length of Middlebrook Rd. Address County Comms.

W. Va., Dunbar.—Dunbar Land Co., Charleston, W. Va., will construct 6 mi. sidewalks. (Lately noted as by city.)

W. Va., Grantsville.—City voted \$10,000 bonds to construct sewer system. Address The Mayor.

W. Va., Dunbar.—Dunbar Land Co., Charleston, W. Va., will construct sewers. (Lately noted as by city.)

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to construct sewer system; C. W. Breech, Mayor. (Lately noted.)

Tex., Ferris.—City let contract to Dallas company to construct sewer system; sold \$16,000 bonds. Address The Mayor.

Tex., Mission.—City is reported to vote on bonds to construct sewer system; estimated cost \$25,000. Address The Mayor.

Tex., Pittsburg.—City is considering granting of sewer franchise to S. G. Duff, Greenville, Tex.

Va., Norfolk.—Board of Control let contract Louis Lawson to furnish material and construct concrete storm-water drain on Olney Rd. between Boush and Duke Sts.

W. Va., Dunbar.—Dunbar Land Co., Charleston, W. Va., will construct sewers. (Lately noted as by city.)

W. Va., Grantsville.—City voted \$10,000 bonds to construct sewer system. Address The Mayor.

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S. C., Spartanburg.—Elks' Home, building owned by T. A. Green, Wilmington, N. C.; loss \$10,000.

S. C., Sumter.—D. C. Shaw Co.'s garage and repair shop; loss \$2500.

Tenn., Memphis.—H. W. Dixon Co.'s printing plant on 12th floor Lotus Bldg., 3d St. and Jefferson Ave.; estimated loss \$10,000.

Tenn., Nashville.—Bradford Wholesale Furniture Mfg. Co.'s mattress factory at 29th and Joe Johnston Aves.; estimated loss \$3000.

Tenn., Tellico Plains.—J. M. Irwin's store; Frank Grant's store; Wall & Co.'s meat market; Blankenship Jewelry Co.'s building; Gardner & Aikens' building; N. Giles Carter's building; I. O. O. F. Hall; Citizens' Club building; W. B. Hart's postoffice building; Bell's Restaurant; total loss \$50,000.

Tex., Anson.—Residence of Albert Johnson, Prest. of Anson State Bank; loss \$7000.

Tex., Burkburnett.—Burkburnett Light Co.'s plant; estimated loss \$5000.

Tex., Dickinson.—Residence of Dr. H. O. Shands, Houston, Tex.

Tex., Galveston.—K. Tidemann & Co.'s concentration shed; loss \$6000; H. H. Kerr, Gen. Mgr.

Tex., Marshall.—Geo. Holmes' dwelling, 2 mi. from Marshall; loss \$3700.

Tex., Omaha.—State Bank Bldg., occupied by Omaha Breeze, J. P. Beasley and Woodmen's Hall.

Tex., Shamrock.—Buildings of L. Augustine Brokerage Co., Scruggs Bros., Harry Tate, H. C. Lyle, Mrs. Crowley, Young Men's Club, J. M. Woodley's office; loss \$30,000.

Tex., Sulphur Springs.—Askew & Buford's store, loss \$7500; Carothers Bros.' store, loss \$26,000.

Va., Duffield.—Virginia & Southwestern Ry.'s station; loss \$3000; B. Herman, Ch. Engr. M. W. and Struc., Washington, D. C.

Va., Fredericksburg.—Chas. H. Hunkamp's residence, 4 miles from Fredericksburg.

Va., Money Point.—Atlantic Coast Lumber Corp.'s plant, including various manufacturing buildings, office structure, kilns, and about 3,500,000 ft. lumber; estimated loss, \$200,000.

Va., Warm Springs.—Bath county jail; loss \$10,000. Address County Commrs.

W. Va., Hurricane.—Hurricane Milling Co.'s plant; estimated loss \$20,000.

G NEWS

PROPOSED

at 4938-44 Wise St.; cost \$10,000; construction by owner.

Tenn., Memphis.—Hanker & Cairns, Memphis, prepared plans for apartment-house; bids being received; cost \$35,000.

Tenn., Memphis.—J. W. Hull will erect apartment and store building at Eastmoreland Ave. and Bellevue Blvd.; 2 stories; cost \$30,000; S. J. Weigel, Archt., Memphis.

Tex., Houston.—H. Grossman will erect two-story apartment-house at 1916 Jackson St.

Tex., Houston.—Wm. Mendlowitz, Seguin, Tex., is having plans prepared by Finger & Bailey, 601 Kress Bldg., Houston, for apartment-house; 40x100 ft.; brick; tar and gravel roof; bids opened Mich. 15; construction begins April 15; cost \$35,000 without mechanical equipment. (Lately noted.)

Va., Richmond.—P. H. Bruner will erect brick tenement-house on Grove Ave between Elm and Davis Sts.; cost \$24,000.

ASSOCIATION AND FRATERNAL

Ala., Bay Minette.—A. F. and A. M. acquired site and will erect building; Fred C. Hall (Chrmn.), H. R. Kirby and J. M. Standard, Com.

Fla., Jacksonville.—Labor Temple Assn. is having plans prepared for labor temple.

Fla., West Palm Beach.—W. I. Metcalf has plans by G. L. Pfeiffer, Miami, Fla., for building on Olive St.; 53x100 ft.; reinforced concrete; tile roof; electric lights; foundation under construction; cost \$20,000 without mechanical equipment; lower floor for post-office; second floor for offices; upper floor for lodgerooms. (Lately noted.)

Miss., Meridian.—B. P. O. E. will erect building.

N. C., Wilmington.—Y. W. C. A. has plans by J. F. Gause, Wilmington, for gymnasium in rear of present structure on 4th St.; cost \$3000.

at 4938-44 Wise St.; cost \$10,900; construction by owner.

Tenn., Memphis.—Hanker & Cairns, Memphis, prepared plans for apartment-house; bids being received; cost \$25,000.

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ment-house; 40x100 ft.; brick; tar and gravel roof; bids opened Mch. 15; construction begins Apl. 15; cost \$35,000 without mechanical equipment. (Lately noted.)

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concrete; tile roof; electric lights; foundation under construction; cost \$20,000 without mechanical equipment; lower floor for post-office; second floor for offices; upper floor for lodgerooms. (Lately noted.)

Miss., Meridian.—B. P. O. E. will erect building.

N. C., Wilmington.—Y. W. C. A. has plans by J. F. Gause, Wilmington, for gymnasium in rear of present structure on 4th St.; cost \$3000.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

S. C., Columbia.—Richland Lodge No. 39, A. F. & A. M., will erect building to replace burned structure at 1425 Main St.; main structure 6 stories; 36x200 ft.; lower floor for occupancy by R. L. Bryan Co.; second and third floor for offices; 3 upper floors for lodge purposes; also erect 2-story annex in rear of standard fireproof construction, 36x50 ft., for printing department of R. L. Bryan Co.; cost about \$100,000.

S. C., Spartanburg.—B. P. O. E. is considering erection of building to replace structure noted damaged by fire; A. J. Turner, John P. Fielder, M. C. Foster and others, committee.

Tenn., Nashville.—Al Menah Temple, Ancient Arabic Order Nobles of the Mystic Shrine, will erect dormitory for boys at Masonic Widows and Orphans' Home; cost \$12,000.

Tenn., Nashville.—Colored Branch Y. M. C. A. will erect building at Cedar St. and Park Pl.; site 80x140 ft.; fireproof; cost \$50,000 without mechanical equipment; S. W. McGill, Gen. Secy., 226 7th Ave., Nashville.

Tex., Dallas.—Labor Temple Building Assn. has plans by Lang & Wittich, Dallas, for labor temple at Federal and Masten Sts.; 3 stories; stores on lower floor. (Previously noted.)

Tex., El Paso.—Y. M. C. A. will erect building; plans ready about June 1; H. D. Durkee, general secretary.

BANK AND OFFICE

Fla., West Palm Beach.—W. I. Metcalf has plans for office, lodge and postoffice building. (See Association and Fraternal.)

S. C., Columbia.—Richland Lodge No. 39, A. F. & A. M., will erect building for offices, etc. (See Association and Fraternal.)

Tenn., Maryville.—Bank of Blount County, John M. Clark, Cash. and Chrmn. Building Comm., receives bids until Feb. 26 to erect building for bank, office, store, club and Masonic lodge; 30x160 ft.; 3 stories; ordinary construction; gravel roof; steam heat; electric lighting; plans and specifications at the bank and office of Albert B. Baumann, Archt., Knoxville, Tenn. (Lately noted.)

Tenn., Nashville.—Nashville, Chattanooga & St. Louis Ry., H. McDonald, Ch. Engr., Nashville, will erect office building at 110 10th St.; cost \$9000.

Tex., Corsicana.—Corsicana National Bank, J. A. Thompson, Prest., is considering erection of 6-story bank and office building; fireproof; steam heat.

Tex., San Antonio.—National Bank of Commerce purchased site and will erect building; plans not determined; construction probably to begin before middle of year. (Lately noted.)

CHURCHES

Ala., Monroeville.—Methodist church will erect building; J. B. Barnett, C. J. Jackson, J. D. Rawls and F. W. Horee, Com.

Ark., Blytheville.—Methodist church has plans by John Galsford, Memphis, Tenn., to remodel building.

D. C., Washington.—Keller Memorial Lutheran Church, Maryland Ave. and 9th St. N. E., is having plans prepared by MacNeil & MacNeil, 414 Union Trust Bldg., Washington, for addition to church; 45x55 ft.; fireproof; slate roof; steam heat; electric light; cost about \$10,000; plans ready about Mar. 26.

Fla., Jacksonville.—Catholic Church will erect building on Summit Ave.; Rev. Father Maher of Church of the Immaculate Conception is interested.

Fla., Miami.—Methodist church is having plans prepared by John Galsford, Memphis, for church; cost \$35,000. (Lately noted.)

Fla., West Palm Beach.—Methodist church has plans by John Galsford, Memphis, Tenn., for building; Gothic style; cost \$30,000.

Ga., Atlanta.—English Lutheran Church, Rev. W. C. Schaeffer, Jr., pastor, will erect building; Gothic style; roof garden; later remodel present structure for Sunday-school; cost of new structure \$60,000; E. C. Seitz, Archt., Atlanta.

Ga., Columbus.—Cemetery Com. of City Council, T. S. Roberts, Chrmn., accepted plans by Chas. F. Hickman, Exchange Bldg., Columbus, for chapel for Riverside Cemetery; brick; stone trimmings; 70x32 ft.; metal or tile roof; arcade in center with 12-foot driveway and 8-foot sidewalk on each side; cost \$4999 to \$5000; W. C. Campbell, City Engr., in charge of construction.

Ga., Moultrie.—Methodist church will erect building to cost about \$30,000. Address The Pastor.

Ky., Barbourville.—M. E. Church South will erect building; cost \$20,000. Address The Pastor.

Md., Baltimore.—Lafayette Square Presbyterian Church, Calhoun St., near Lanvale St., has plans by Owens & Sisco, 1605 Continental Bldg., Baltimore, for interior alterations for entrance, social hall, kitchen, locker-room, toilets; wood and plaster; concrete floors; cost about \$3000.

Miss., Durant.—Durant Methodist Episcopal Church South, Rev. E. N. Broyles, Pastor, will erect building; cost about \$15,000.

Mo., Kansas City.—Linwood Boulevard Methodist Church will expend \$15,000 for improvements to include rearranging present basement and erecting new basement to south of present church at Olive St. and Linwood Blvd.; superstructure finally to be erected above new basement. Address The Pastor.

Okla., Ponca City.—First Baptist Church, Rev. S. W. Brumfield, pastor, has plans by W. A. Rayfield & Co., P. O. Box 649, Birmingham, Ala., for building; 36x54 ft.; ordinary construction; shingle roof; stoves; gasoline lighting; cost \$4000 without mechanical equipment. Address Architects.

Tex., Corsicana.—Agudas Achem Congregation organized; J. Goldman, Prest., will erect synagogue.

Tex., Port Arthur.—First Methodist Episcopal Church has plans by C. F. Ward, Port Arthur, for building; 50x90 ft.; brick and tile walls; reinforced concrete foundation; ordinary construction; gas-steam heat to cost \$1200; tile roof; indirect lighting system to cost \$400; pipe organ; auditorium to seat 500. Address Architect.

Va., Norfolk.—Freemason Street Baptist Church has plans by Louis R. Moss, 1119-20 National Bank of Commerce, Norfolk, for Sunday-school building; mill construction; gravel roof; gas lighting; Mercer & Johnson are lowest bidders at \$15,288. (Lately noted.)

Va., Portsmouth.—St. Thomas Baptist Church, Rev. W. L. Dawson, pastor, has plans by W. A. Rayfield & Co., P. O. Box 649, Birmingham, Ala., for building at Highland and Elm Sts.; 45x70 ft.; ordinary construction; metal shingle roof; hot-air furnace; electric lights; cost \$3000. Address architects.

CITY AND COUNTY

Fla., Miami.—Fire Station.—City will erect fire stations in southern and western sections; Casper Hefty, councilman.

Ga., Metter.—Jail.—Candler county will levy tax to erect jail. Address County Commrs.

Md., Baltimore.—Warehouse.—Board of Awards, John Hubert, Act. Prest., receives bids at office of Richard Gwinn, City Register, City Hall, until Feb. 24 for alterations and repairs to municipal warehouse on Courtland St. adjoining Health Dept. building; plans and specifications at office of C. E. Stubbs, Inspector of Buildings.

Mo., Huntsville.—Library.—City is having plans prepared by Ludwig Abt, O'Keefe Bldg., Moberly, Mo., for Carnegie library; 30x50 ft.; 1 story and basement; oak finish and floors; vapor heat; tile roof; brick and terra-cotta trim; art glass; cost \$9300.

Mo., Kansas City.—Library.—School Dist. of Kansas City, James B. Jackson, Jr., Secy., has plans by Chas. A. Smith, 602 Finance Bldg., Kansas City, for addition to library at 9th and Locust Sts.; 48x132 ft.; fireproof; tile roof; direct radiation heat; generating sets for lighting; book lift; cost \$125,000 without mechanical equipment. Mr. Jackson may be addressed. (Lately noted.)

Tenn., Union City.—City Hall.—City will erect city hall; W. M. Turner, J. A. Wheeler and John Adams, Com.

Tex., Fort Worth.—Jail.—Tarrant county votes Apr. 6 on \$350,000 bonds to erect jail; Sanguinett & Staats, Archts., Fort Worth. (Lately noted.)

Va., Staunton.—Jail.—City and Augusta county will begin construction of jail about May 1; plans by O. D. Oakley of Camden Iron Works, Salem, Va., call for brick, stone and iron structure; cost \$30,000 to \$40,000; will soon advertise for bids. (Previously noted.)

DWELLINGS

Ala., Gadsden.—Eugene Wiel will erect residence in Bellevue.

Ark., Little Rock.—S. M. Apple will erect frame residence at 2830 State St.; cost \$3000.

Ark., Little Rock.—Hammond & Adams will expend \$3500 for repairs and improvements to building at 415 W. 6th St.

D. C., Washington.—A. C. Moses, 916 New York Ave. N. W., will erect four 2-story brick dwellings at 1372 South Carolina Ave. S. E. and 215-19 14th St. S. E.; cost \$10,000.

D. C., Washington.—D. J. Dunigan, Bond Bldg., will erect three 2-story brick dwellings at 2812-16 Sherman Ave.; cost \$4500.

D. C., Washington.—Kennedy Bros., 1331 H St. N. W., will erect 6 dwellings at 1501-11 Irving St., in addition to 6 under construction; 2 stories and attic; frontage 24 ft. each; porches front and rear; 8 rooms; also construct stone wall 6 ft. high and 700 ft. long; cost of 12 structures about \$100,000; also plans to erect 12 dwellings on Quebec St. between Warder St. and Park Pl., in Princeton Heights; 2 stories and attic; 8 rooms; 23 ft. wide; cost \$70,000; completion by July 15.

Fla., Clearwater.—Jas. B. McChesney has plans by Lester Avery, Clearwater, to erect dwelling at Harbor Oaks; 40x40 ft.; shingle roof; cost \$5000; bids opened Feb. 15.

Fla., Jacksonville.—N. L. Snelson will erect 2-story frame residence on Herschell St. between Barrs and King Sts.; cost \$3500.

Fla., Jacksonville.—B. S. Levy will erect residence; brick and hollow tile; tile roof; steam or hot-water heat; 6 rooms; bungalow type; wood joists; cost \$10,000 without mechanical equipment; Mark & Sheftall, Archts., Jacksonville.

Fla., Jacksonville.—G. B. Travis will erect 2-story residence; cost \$3500.

Fla., Lakeland.—R. B. F. Key has plans by A. J. Poteet, Lakeland, Fla., for dwelling on S. Florida Ave.; 43x45 ft.; ordinary construction; metal roof; day labor; cost \$5000 without mechanical equipment.

Fla., Miami.—Elbert H. Beers will erect residence on 29th St.; 36x50 ft.; stone; concrete floors; fireproof; tile roof; hot-air heat; electric lighting and cooling; cement sidewalks; plans by owner; will consider bids next fall. (Lately noted.)

Fla., Pensacola.—Mrs. G. W. Norsworthy has plans by Wm. Alfred, Pensacola, for dwelling; 30x60 ft.; frame construction; Vulcanite asphalt shingle roof; gas and electric lighting; construction by owner; day labor.

Fla., Perry.—D. L. Keen has plans by L. J. Wilson, Perry, to erect dwelling; 45 ft. wide; 68 ft. deep over porches; bungalow type; concrete block construction; fireproof; galvanized-iron shingle roof; brick mantels; cost \$3500; Archt. will superintend construction.

Fla., Seabreeze.—C. J. Rouser of Lansing, Mich., temporary address care of Smith G. Young, Seabreeze, will erect winter residence.

Ga., Atlanta.—J. C. Cook will erect residence; 2 stories; frame; probably tile roof; hardwood floors; garage; S. D. Trower, Archt., Brant Bldg., Atlanta.

Ga., Atlanta.—A. H. Bailey will erect 10-room dwelling on Fairview Rd.; cost \$9000 day labor.

Ga., Atlanta.—Mrs. Ellen Williamson will erect two 1-story frame residences on Hopkins St.; cost \$4000.

Ga., Atlanta.—R. M. Abernathy & Co. will erect bungalow at 233 Lucile St.; 7 rooms; shingle roof; \$150 hot-air heating plant; cost \$2000 without mechanical equipment; plans and construction by owner. (Lately noted.)

Ga., Augusta.—Eli Mustin has plans by H. F. E. Wendell, Augusta, for residence on Walton Way; 9 rooms; ordinary frame construction; shingle roof; hot-air furnace; cost \$7000 without mechanical equipment; construction begins about Apr. 1. (Lately noted.)

Ga., Savannah.—Mrs. P. C. McClifford will erect residence at Aven Park.

Ga., Savannah.—E. Morgan will erect double dwelling; brick; colonial style; slate roof; furnace heat; construction by owner; H. W. Witcover, Archt., National Bank Bldg., Savannah.

Ky., Louisville.—L. Jacobson will erect 10 frame cottages; cost \$12,000.

Ky., Louisville.—Frank Buckle will erect brick-veneer dwelling at 4418 W. Market St.; cost \$3000.

Ky., Louisville.—C. T. Thomas will erect 2 frame dwellings at 239 and 349 Shawnee Ter.; cost \$7000.

Ky., Louisville.—G. F. Herold will erect brick-veneer dwelling at 4416 W. Market St.; cost \$3000.

La., New Orleans.—I. B. Rennyson Co., Inc., will erect number of bungalows in Arcadia Ct. on Esplanade Ave., near Bayou St. John.

La., Shreveport.—Steere Home Construction Co. is developing South Highlands; will erect at once 18 to 20 dwellings and 1 store building; frame; shingle roof; natural

gas heating; cost \$2500 to \$8000 each; plans and construction by owner.

Md., Baltimore.—Abe Silberstein, 612 Equitable Bldg., contemplates erection of 18 dwellings.

Md., Baltimore.—Geo. Spindler has plans by John W. Nelson, Jr., Raspeburg, Md., for dwelling on York Rd., near Beaumont Ave.; 2 stories; 35x28 ft.; frame; slate roof; steam heat; electric light; plans out for bids.

Md., Baltimore.—Howard Park Co., John Phillip Hill, Prest.; Bancroft Hill, Secy., Treas. and Engr. in charge, will make improvements at Howard Park, erecting dwellings, etc.

Md., Baltimore.—Jos. L. White Realty Co., Potomac and McDermott Sts., has plans by Chas. Broving for 44 dwellings; 34 at 601-29 and 600-25 Robinson St., 12.11x41 ft.; 10 at 3000-18 McDermott St., 13.11x45 ft.; all 2 stories; brick; slag roof; hot-air heat; cost about \$51,000.

Md., Baltimore.—F. E. Tobe, 2403 W. North Ave., will erect 9 dwellings at 1701-7 Bentolou St.; eight 14.3x52.6 ft., one 15.8x52.6 ft.; all 2 stories; brick; slag roof; steam heat; cost about \$16,000; plans and construction by owner.

Md., Baltimore.—Thos. F. Nagle, 4705 Locust Ave., Baltimore, has plans by Fredk. E. Beall, 306 St. Paul St., Baltimore, for dwelling on Boorman Ave. near Garrison Ave.; 2 stories; 24x32 ft.; frame; slate roof; steam heat; electric light; cost about \$3800; construction by owner.

Md., Baltimore.—Albert M. Soty has plans by E. L. Palmer, Jr., 408 Roland Ave., Roland Park, Md., for dwelling in Guilford; brick or stucco; cost reported about \$8000.

Md., Baltimore.—Murray & Haynes, 3017 Chelsea Ave., are reported to build dwelling on Springdale Ave., West Forest Park; 1 1/2 stories; frame; cost about \$3000.

Md., Baltimore.—E. W. Young is having plans prepared by Geo. S. Childs and Wm. O. Sparklin, 502 Law Bldg., Baltimore, for dwelling at Carlisle Ave. and Hilton St.; brick or frame; slate roof; heating and lighting undecided; plans ready about Apr. 15.

Md., Baltimore.—A. Silberstein, 612 Equitable Bldg., has plans by Stanislaus Russell, 2900 Clifton Ave., Baltimore, for and will erect 23 dwellings on 38th St. near Star La.; brick; slag roof; steam heat; cost about \$40,000.

Md., Hamilton.—St. Dominic's R. C. Church is having plans prepared by John K. Stack, 12 E. Lexington St., Baltimore, Md., for rectory; 2 stories; 30x60 ft.; Port Deposit granite; slate roof; hot-water heat; cost about \$10,000.

Md., Catonsville.—Chas. A. Schaub is reported to have let contract to Schaub Bros. to erect dwelling on Bloomsbury Ave.

Md., Govans.—Frank Carozza has plans by Chas. Hilderbrand, Jr., 224 Hoffman St., Baltimore, for dwelling on Walker Ave., near York Rd.; 2 stories; 45x29 ft.; frame; asbestos roof; hot-water heat; electric lights; bids being taken.

Mo., Kansas City.—O. L. Carr, Prest. Carr-Hackett Co., will erect residence at 53th and Wornall Sts.

Mo., Kansas City.—Edwin Godron will erect residence at 75th and Main Sts.

Mo., Kansas City.—Thos. P. Humphrey, with Metropolitan Street Ry. Co., will erect residence on 53d St.

Mo., Moberly.—Dr. O. O. Ash has plans by Ludwig Abt, O'Keefe Bldg., Moberly, for residence; cost \$3000.

Mo., Moberly.—P. Witten has plans by Ludwig Abt, O'Keefe Bldg., Moberly, for \$3000 residence.

Mo., St. Louis.—Mrs. C. W. May will erect residence on Olive St. Rd.

Mo., St. Louis.—Fred B. Harding of Harding Bros. Co. will erect 4 residences in Washington Park Dist.; cost \$13,000.

Mo., St. Louis.—Nat W. Ewing of Humphrey & Ewing has plans by Roth & Study, International Life Bldg., St. Louis, for residence at Kingsbury Pl. and Belt Ave.; 15 rooms; cost about \$35,000.

Mo., St. Louis.—Sam Koplar will erect 2 two-story dwellings at 1115-17 Lawn St.; cost \$6000; construction by owner.

Mo., St. Louis.—Lelsner Realty Co. will erect 2 two-story dwellings at 5316-20 Berlin St.; cost \$9000; construction by owner.

N. C., Winston-Salem.—Mrs. Henrietta Fussell will erect residence on Central Terrace, Southside.

S. C., Charleston.—W. K. Mayrant will erect residence at Gibbs and Limehouse Sts.; ordinary frame construction; metal roof; hot-water heat; electric lights from

city plant; cost \$4900 to \$6000; construction by owner.

S. C. Chester.—John M. Hemphill will soon let contract to erect residence in West End.

Tenn., Athens.—T. I. Magill will erect lately-noted residence on Engleside Ave.; 35x50 ft.; ordinary construction; shingle roof; hot-air or hot-water heat; bids opened Apr. 1; owner may construct; cost \$2500 without mechanical equipment. (See Machinery Wanted.)

Tenn., Athens.—Geo. Stephens will erect bungalow.

Tenn., McKenzie.—Bullard Dinwiddie will erect bungalow.

Tenn., Memphis.—Dr. J. W. Peete is having plans prepared for residence at South Parkway and Oaklawn Blvd.; 2 stories; brick and tile; cost about \$10,500.

Tenn., Nashville.—A. T. Peterson will erect brick-stucco bungalow on Highland Ave.; cost \$3500.

Tenn., Nashville.—W. H. Herbert will erect residence at 9th and Russell Sts.; cost \$4500.

Tex., Abilene.—Mrs. Emma Jackson will erect residence to replace structure lately noted damaged by fire; 19 rooms.

Tex., Abilene.—C. W. Bacon will erect 2-story dwelling at 5th and Beech Sts.

Tex., Dallas.—C. M. Wheeler will erect 2-story 8-room frame residence at 2634 Grand Ave.; cost \$4000.

Tex., Dallas.—J. V. Walker will erect 2-story 7-room frame dwelling at 5208 Junius St.; cost \$3800.

Tex., Dallas.—P. R. Freeman, Jr., will erect 6-room brick veneer residence at 4023 Kemmon Ave.; cost \$4500.

Tex., Dallas.—S. Kirkgard will erect 3 frame cottages. (See Stores.)

Tex., Dallas.—Robt. Williams will erect 2-story 6-room frame residence at 4722 Swiss Ave.; cost \$3000.

Tex., El Paso.—Phoenix El Paso Building Co. will expend \$7000 to repair and alter dwelling on W. Missouri St.

Tex., El Paso.—Anderson-Filler Investment Co. will erect brick bungalow in Pierce-Finley Addition; cost \$3000.

Tex., El Paso.—Ed Heid is having plans prepared by Trost & Trost, El Paso, for dwelling on Alameda Ave.; cost \$5000.

Tex., El Paso.—Geo. W. Pusch has plans by Thorman & Co., El Paso, for bungalow; 6 rooms; cost \$3500.

Tex., El Paso.—Mrs. A. Goodman will erect residence; 2 stories; brick; stucco finish.

Tex., El Paso.—Mrs. Van Epps is having plans prepared by Thorman & Co., El Paso; 7 rooms; brick; cost \$4500.

Tex., El Paso.—Robt. Krakauer is having plans prepared by Trost & Trost, El Paso, for residence in Gold Hill Addition; 2 stories; brick; cost \$15,000.

Tex., Houston.—S. E. Bering will erect cottage on Walker St.; cost \$2500.

Tex., Houston.—R. S. Crosby will erect residence on Hathaway St.; cost \$3500.

Tex., San Antonio.—E. A. Leighton will erect 10-room dwelling on Ave. D; cost \$3000.

Tex., San Antonio.—S. Friedmann will erect 3 five-room dwellings on S. Mesquite St.; cost \$3000.

Va., Graham.—V. L. Sexton will erect residence.

Va., Norfolk.—Phillip M. Prescott opened bids to erect residence on Lochaven St.; E. L. Myers, Norfolk, is lowest bidder; Wickham C. Taylor, Archt., Norfolk.

Va., Norfolk.—W. J. Atkinson will erect residence; 2 stories; bungalow type; 8 rooms and bath; hot-air heat; construction by owner.

Va., Norfolk.—Ernest L. Bonney has plans by Wm. Newton Deal, 46 Chamberlaine Bldg., Norfolk, for residence at Colley Ave. and Maury Pl.; 2 stories and basement; brick; stone trimmings; 43½x32½ ft.; ordinary construction; slate roof; hot-water heat; electric lights; 11 rooms and 2 baths; bids opened Mch. 15.

Va., Richmond.—Davis & Archer will erect 2-story brick dwelling on Hanover St.; cost \$5000.

Va., Richmond.—A. L. Sharp will erect 3 2-story frame dwellings on Third Ave. between Pollock and Burns Sts., Highland Park; cost \$6000.

Va., Richmond.—C. P. Lathrop will erect 2-story brick residence at 1514 Park Ave.; cost \$10,500.

Va., Richmond.—Eleanor L. Smith will erect 2-story brick dwelling at 2200 Hanover Ave.; cost \$5500.

Va., Richmond.—F. H. Knott will erect 2-story brick dwelling on Garland St.; cost \$5000.

Va., Richmond.—W. B. Catlett will erect 2-story brick dwelling at 2202 Stuart Ave.; cost \$6500.

Va., Richmond.—Virginia W. and C. H. Wagner will erect 2-story brick residence on Frank St.; cost \$4500.

Va., Roanoke.—A. C. Hopwood of Poindexter & Hopwood has plans by G. R. Ragan, Roanoke, for residence; brick cased; is receiving bids.

Va., Roanoke.—Annie M. Stuart will erect 2-story brick-cased dwelling on Day Ave. S. W.; cost \$4000.

W. Va., Bluefield.—Lakeside Land Assn. will expend \$4000 to move and remodel dwelling on Oakhurst Ave.

GOVERNMENT AND STATE

Ark., Walnut Ridge.—Postoffice.—W. E. Moore will erect building for postoffice; 25x80 ft.; completion by June 1.

Fla., West Palm Beach.—Postoffice.—W. I. Metcalf has plans for postoffice, lodge and office building. (See Association and Fraternal.)

La., New Orleans.—Naval Station.—Bureau of Yards and Docks, Washington, D. C., opened bids to repair buildings at U. S. Naval Station; C. O. Eure, Hattiesburg, Miss., is lowest bidder at \$28,659. (Lately noted.)

HOSPITALS, SANITARIUMS, ETC.

Ga., Macon.—City voted \$150,000 bonds for erection and maintenance of hospital; J. J. Galliard, City Engr. (Lately noted.)

Md., Baltimore.—Hebrew Hospital and Asylum, Monument St. near Broadway, has plans by C. L. Reeder, 921 Equitable Bldg., Baltimore, to enlarge boiler and power equipment and remodel and enlarge servants' quarters; estimated cost \$45,000; bids being taken.

Md., Baltimore.—Hebrew Hospital and Asylum, Monument St. near Broadway, has plans by Smith & May, Archts., 1133 Calvert Bldg., and C. L. Reeder, Consult. Engr., 921 Equitable Bldg., both of Baltimore, to enlarge boiler and power equipment and remodel and enlarge servants' quarters; estimated cost \$45,000; bidders are Edw. Brady & Son, 1113 Cathedral St.; John Waters, 21 E. Centre St.; B. F. Bennett Bldg. Co., 123 S. Howard St.; Geo. Bunnecke & Co., 305 St. Paul St.; Chas. L. Stockhausen, National Marine Bank Bldg.; John E. Marshall & Son, 119 Mercer St.; J. Henry Miller, Eutaw and McCulloch Sts.; all of Baltimore; bids due Mch. 17.

Mo., Moberly.—Dr. C. C. Clapp has plans by Ludwig Abt, Moberly, for alterations to hospitals; brick veneer; tile floors; steel porch columns; reinforced concrete walls; steel asbestos shingles; cost \$7000.

Tex., Corsicana.—R. R. Owens, Navarro County Judge, receives bids until Mch. 20 to erect 1-story-and-basement addition and remodel Physicians and Surgeons' Hospital building; plans and specifications at office of Ernest E. McAnelly, Archt., 1201 Southwestern Life Bldg., Dallas, and at hospital (Lately noted.)

HOTELS

Ark., Heber Springs.—Heber Springs Hotel Co. organized with \$50,000 capital stock by Mrs. B. A. Burch, Joplin, Mo., and others; will erect New Adrain Hotel; 3 stories; 100 rooms; buff brick and marble with stone foundation; fireproof; 140x10 ft. (Lately noted.)

Ga., Savannah.—J. B. Pound, Chattanooga, Tenn., is reported having plans prepared by E. W. Young, Savannah, for roof garden on Hotel Savannah.

Mo., Kansas City.—Burt & Ryan, Props. of Hotel White, leased Gibraltar Bldg. adjoining and will remodel, providing 100 additional rooms and enlarged cafe.

Tenn., Jackson.—Emmett C. Wilson is reported to erect \$50,000 hotel. (See Stores.)

Va., Petersburg.—Chamber of Commerce and Retail Merchants' Assn. are promoting organization of Greater Petersburg Investment Corp. to erect hotel to replace Shirley Hotel.

MISCELLANEOUS

Ark., Pine Bluff.—Home.—Negro Methodist Industrial Home will erect dormitory and classrooms for girls; completion by Oct. 1.

Ga., Atlanta.—Clubhouse.—Jewish Progressive Club will erect clubhouse; construction begins by Apr. 10; Ben Massell, Pres., is receiving bids for excavation.

Md., Baltimore.—Nursery.—St. Martin's Day Nursery is taking bids to erect building on Fayette St. near Payson St.; 2 stories; brick and stone; cost about \$50,000; bidders are J. J. O'Connor, 427 E. Lexington St.; Edw. Brady & Son, 1113 Cathedral St.; Monmonier & Sorrell, 1711 McCulloch St.; Singer-Pentz Co., 600 Equitable Bldg.; all of Baltimore; bids due Mar. 24; Geo. R. Callis, Archt., Knickerbocker Bldg., Baltimore.

Mo., Kansas City.—Home.—George H. Nettleton Home Assn. has plans by Wilder & Wright, Kansas City, for home on Swope Parkway; Virginia colonial style; J. P. Downing, Treas., New England National Bank.

Mo., St. Louis.—Clubhouse.—Mississippi Valley Yacht Club, Alden Little, Secy. pro tem., will erect clubhouse at Chain of Rocks; 2 stories; porches on both floors; La Beaume & Klein, Archts., St. Louis.

Okla., Tulsa.—Undertaking.—J. J. Culbertson will construct brick building on S. Boulder Ave. for undertaking establishment; also erect 2-story brick mercantile building.

Tenn., Memphis.—Clubhouse.—Memphis Country Club has plans by G. M. Shaw, Memphis, for stable and toolhouse; cost \$6000.

Tex., San Antonio.—Home.—West Texas Conference, Rev. C. B. Cross, Chmn. of Com., will erect building to cost about \$109,000 for Rescue Home.

Va., Lynchburg.—Clubhouse.—R. C. Scott has plans by J. I. Menefee, Lynchburg, for clubhouse for Rivermont Athletic Club on Rivermont Ave.; 30x40 ft.; mill construction; shingle roof; bids opened Mch. 1; cost \$3000 without mechanical equipment. Address Mr. Scott, 1705 Rivermont Ave.

RAILWAY STATIONS, SHEDS, ETC.

Ga., Macon.—Railroad Commission approved general plans of Macon Terminal Co. for erection of terminal station and directed company to submit complete set of specifications by Sept. 15; plans by Fellheimer & Long, 7 E. 42d St., New York, call for station proper 245x81 ft.; express-room 72x147 ft.; baggage and mailroom 72x109 ft.; exterior brick, granite and terra-cotta; interior marble finish; cost of building about \$50,000; with land, track improvements, etc., \$1,100,000. (Noted in August.)

N. C., Charlotte.—Corporation Com., Raleigh, N. C., directed Southern Ry. Co., W. H. Wells, Chief Engr. Constr., Washington, D. C., to submit plans within 60 days for enlarging waiting-room of passenger station, concreting passenger yard and providing sheds over tracks.

N. C., Charlotte.—Corporation Com., Raleigh, N. C., directed Seaboard Air Line Ry., W. D. Faucette, Chief Engr., Norfolk, Va., to submit plans within 60 days for brick passenger station and sheds; reported cost about \$50,000.

N. C., Charlotte.—Norfolk Southern R. R., F. L. Nicholson, Chief Engr., Norfolk, Va., is reported to erect station at College and 6th Sts.

Tenn., Lewisburg.—Lewisburg & Northern R. R. (Louisville & Nashville R. R.), W. H. Courtenay, Ch. Engr., Louisville, Ky., will erect station; brick; cost about \$10,000.

SCHOOLS

Ark., Althelmer.—School Board will erect school according to plans by Fred Krausz, 318 Citizens' Bank Bldg., Pine Bluff, Ark.; L. M. Quattlebaum, Secy.; bids opened Mch. 16.

Fla., Fellsmere.—Board of Instruction has plans by F. H. Trimble, Fellsmere, for school; 2 stories and basement; ordinary construction; brick, with wall tile and wooden floors; probably Barrett specification roof; gas or steam heat and electric lights; cost \$25,000 without mechanical equipment; bids opened about Apr. 15. (Lately noted.)

Fla., Tavares.—Tavares Special School Dist. is having plans prepared by W. H. Carr, Leesburg, Fla., for \$12,000 school.

Fla., Umatilla.—W. H. Carr, Leesburg, Fla., is preparing plans for \$8000 school.

Ga., Columbus.—School Trustees accepted tentative plans by T. W. Smith, Columbus, for 2-story 2-room addition to East Highlands School; also authorized committee to secure bids for installation of heating apparatus and sanitary system in high school.

Ga., Ellaville.—City, E. J. Hart, Mayor, will erect school building; about 70x80 ft.; 2 stories; 8 rooms; ordinary construction; metal roof; electric lighting; cost \$10,000; architect not engaged. (Lately noted.)

La., Algiers, Sta. A. New Orleans.—School Trustees will erect school below Naval Sta.

tion in block bounded by Behrman, Numa, Newton and Dianl Sts.; cost \$25,000 to \$30,000.

La., Collinston.—Morehouse Parish School Board, Bastrop, La., sold \$95,000 bonds and will erect school.

Md., Brandywine.—Prince George's County School Board, E. S. Burroughs, Secy., Upper Marlboro, Md., will issue \$7500 bonds to erect school. (Lately noted under Upper Marlboro.)

Mo., Bigelow.—Board of Education has plans by W. F. Schrage, 42 E. 32d St., Kansas City, Mo., for school; 2 stories and basement; 52x81 ft.; Frank Walters, Clerk of Board.

Mo., Hughesville.—Hughesville School Dist. votes Mch. 18 on \$5000 site-purchase and high-school bonds. Address Dist. School Trustees.

Mo., Luray.—Ludwig Abt, O'Keefe Bldg., Moberly, Mo., is architect for school; 2 stories and basement; terra-cotta trimmings; brick; yellow pine finish and floor; vapor heat and ventilation; bids received until Mch. 25; plans in progress; cost \$8000.

N. C., Asheville.—Legislature passed bill authorizing Board of Aldermen to call special election on \$200,000 bonds for schools. (Lately noted.)

N. C., Charlotte.—City votes Mch. 30 on \$150,000 bonds to acquire sites, erect and remodel schools, equip, etc.; A. H. Wearn, City Clerk and Treas.

N. C., Jamestown.—City will vote on \$15,000 bonds to rebuild burned school; brick; steam heat. Address The Mayor. (Lately noted.)

Okla., Bristow.—Bristow School Dist. will vote on \$20,000 bonds to erect school. Address Dist. School Trustees.

Okla., Muskogee.—Oklahoma School for Blind, O. W. Stewart, Supt., has \$25,000 appropriation to erect dormitory.

Okla., Okmulgee.—Okmulgee county voted \$115,000 bonds for schools. Address County Commrs. (Lately noted.)

Okla., Tulsa.—School Board will erect 3 additional units to Horace Mann School, including 2-story auditorium building, 2-story manual training and domestic science building and another structure for kindergarten; R. L. Cross, Archt., Tulsa; also selected J. M. Munn, Tulsa, as architect for Frisco School and Geo. Winkler, Tulsa, for Central Park School. (Bond issue previously noted.)

S. C., Columbia.—Columbia School Dist., E. S. Dreher, Secy., votes Mch. 23 on \$250,000 bonds for schools. (Lately noted.)

S. C., Spartanburg.—School trustees are having plans prepared by L. D. Proffitt, Spartanburg, for school on Fremont Ave.; 82x118 ft.; ordinary construction; tile roof; steam heat; cost \$20,000; bids opened Mch. 25. (Lately noted.)

Tenn., Carthage.—Town votes Apr. 12 on \$15,000 bonds to acquire site, erect and equip high school; A. C. Read, Mayor.

Tenn., Knoxville.—J. B. Lowry, Supt. of Park City and Oakwood Schools, will erect 3 or 4 rooms to Eastport colored school, Park City.

Tenn., Knoxville.—Knox County High School Board will petition Legislature for authority to issue \$50,000 bonds to liquidate \$15,000 debt and erect addition to Central High School. (Lately noted.)

Tenn., Nashville.—Legislature will consider bill authorizing City Commrs. to pass ordinance for issuing \$625,000 bonds to erect high and grammar school buildings.

Tenn., New Market.—Town will erect 4-room addition, convert 2 rooms in present building into auditorium and repair structure. Address Town Clerk.

Tex., Balson.—Balson School Dist. voted bonds for schools. Address Dist. School Trustees.

Tex., Berclair.—R. L. Webb, A. V. Nutt and others, Trustees, will erect school; about 60x90 ft.; 2 stories; brick or lumber; details not determined; construction to begin in 3 to 4 months; cost \$4000. (Lately noted.)

Tex., Cleburne.—City voted \$130,000 bonds to erect schools; Sanguinetti & Staats, Archts., Fort Worth. (Lately noted.)

Tex., Galveston.—School Trustees have plans by A. J. Bellis, Galveston, and receive bids until Apr. 1 to remodel and enlarge Ball High School, including erection of 12 additional rooms (6 on each wing), remodeling south elevation, installing low-pressure steam-heating plant, domestic science, manual-training and laboratory equipment, cement floors and smooth brick walls in basement, etc.; cost \$55,000.

Tex., Gilmer.—School Board is having plans prepared by S. J. Blocher, Longview, Tex.,

for school; 122x70 ft.; ordinary construction; gravel roof; mechanical hot-air heat; electric wiring; cost \$35,000 without mechanical equipment; bids opened about Apr. 15.

Tex., Goliad.—Catholic church plans to erect school at cost of about \$50,000; Rev. Father Plana is interested.

Tex., Haslet.—Haslet Common School Dist. votes Apr. 3 on \$10,000 bond to erect high school. Address Dist. School Trustees.

Tex., Jefferson.—Common School Dist. No. 3 petitioned County Commrs. for election on \$30,000 bonds to erect school. Address Dist. School Trustees.

Tex., Tabor.—Brazos County School Board, Bryan, Tex., will erect rural high school.

Va., Culpeper.—School Trustees, J. L. Fray, Chmn., are having plans prepared by G. R. Ragan, Roanoke, Va., for high school; 12 classrooms; ordinary construction; H. W. Johns-Manville built-up roofing; steam heat; electric lights. Address A. W. Reynolds, Culpeper.

Va., Lexington.—Virginia Military Institute has plans by Bertram G. Goodhue, 2 W. 47th St., New York, for improvements to buildings, etc.; plans also to improve grounds; has \$100,000 available; R. A. James, Prest. Board of Visitors, Danville, Va.

W. Va., Huntington.—Marshall College is having plans prepared by H. Rus Warne, Charleston, W. Va., to erect gymnasium and science building. (Lately noted.)

W. Va., Keyser.—Keyser School Dist. voted \$25,000 bonds to erect school at Piedmont and Mineral Sts.; about 70x90 ft.; slate roof; gas and electric lights; cost \$25,000; C. N. Fennell, Prest. of Board, may be addressed. (Lately noted.)

STORES

Ala., Birmingham.—W. B. Leedy & Co., Agts., will expend \$3200 to repair structure at 2126 1st Ave. North.

Ala., Selma.—Miss Emma Ellasburg will erect building to contain 4 stores; pressed brick; site 200x120 ft.

Ark., Walnut Ridge.—W. E. Moore is reported to erect 2 business buildings.

Fla., Miami.—R. H. Putman, Cincinnati, has plans by August Geiger, Miami, for business building; 50x60 ft.; 1 story; reinforced concrete; foundation to support additional stories.

Fla., Miami.—James Chamberlain is having plans prepared by E. A. Nolan, Miami, for building on 12th St.; 4 stories; reinforced concrete; 50x50 ft.; lower floor for 2 stores; upper floor, apartments.

Fla., Miami.—Carl G. Fisher is receiving bids to erect business building on Alton Beach; concrete; 2 stories; first floor cement; 2 stores on lower floor with plate-glass fronts; upper story for 2 apartments; cost \$5000.

Fla., Sarasota.—W. H. Lord will probably rebuild store occupied by Willis Bros. and noted damaged by fire.

Ga., Atlanta.—Mrs. Sarah Grant will alter building at 23 E. Pine St.; cost \$3800; day labor.

Ga., Atlanta.—E. L. Brooks will erect 2-story brick building on Jefferson St.; cost \$4000; day labor.

Ga., Ashburn.—W. A. Murray will erect business building; 2 stories; 45x100 ft.; ordinary mill construction; tin roof; electric lights; electric elevators; cost \$8000; hot-water heat, \$800; day labor.

Ga., West Point.—H. Hill will erect building; 80x30 ft.; tin roof; electric lights; cement sidewalks. (Lately noted.)

La., Shreveport.—Steere Home Construction Co. will erect store and dwellings. (See Dwellings.)

Md., Baltimore.—Samuel Want, 1233 Calvert Bldg., is having plans prepared by Wm. O. Sparklin and Geo. S. Childs, 502 Law Bldg., Baltimore, to remodel building at Baltimore and Eutaw Sts.; 5 stories, 77x110 ft.; stores on first floor; probably billiard-room on second floor; loftroom above; bowling alleys in basement; cost about \$50,000.

Md., Baltimore.—Samuel Want, 1233 Calvert Bldg., is having plans prepared to remodel building at Baltimore and Eutaw Sts.; 5 stories, 77x110 ft.; stores on first floor; probably billiard-room on second floor; loftroom above; bowling alleys in basement; cost about \$50,000.

Md., Baltimore.—Gustave Lieblich, The Marlborough, Eutaw Pl. and Wilson St., has plans by John Freund, 509 Hoffman Bldg., Baltimore, for store at 305 W. Lexington St.; 3 stories, 16.5x77.9 ft.; brick; slag roof; steam heat; lighting reserved; cost about \$7000;

bidders are: J. Henry Miller, Eutaw and McCulloh Sts.; Thos. B. Stanfield & Co., 212 Clay St.; Edward Watters & Co., 500 N. Charles St.; Chas. L. Stockhausen, National Marine Bank Bldg.; Blake & Engle, Law Bldg.; Adam Kratz, 343 S. Smallwood St.; Consolidated Engineering Co., 243 Calvert Bldg.; R. B. Mason, 308 W. Madison St.; L. Schoenlein & Sons, 2217 E. Baltimore St.; Singer-Pentz Co., Equitable Bldg.; Milton C. Davis, 633 N. Calvert St.; all of Baltimore; bids due Mar. 16, 10 A. M. (Previously noted.)

Miss., Hermannville.—J. Nossor & Bro. will erect store building to replace structure lately noted damaged by fire; 30x70 ft.

Mo., St. Louis.—Angelo Gaia will erect business building on Laclede Ave.

N. C., Asheville.—L. Blomber will remodel building at Patton and Lexington Aves.; install elevator, etc.

N. C., Edenton.—J. H. McMullan, Jr., is promoting organization of company to erect store and opera-house. (See Theaters.)

N. C., Salisbury.—Salisbury Hardware & Furniture Co. is reported to erect addition to building; 3 stories.

Okla., Okene.—Geo. F. Dushabek will erect lately-noted building at cost of \$3500; for garage and hall. (See Motors and Garages.)

Okla., Tulsa.—U. R. Evans and Mrs. W. H. Walker will erect 2-story brick business block; 50x110 ft.

Okla., Tulsa.—J. J. Culbertson will erect 2-story mercantile building. (See Miscellaneous.)

S. C., Columbia.—Richland Lodge No. 39, A. F. & A. M., will erect building for store, offices and lodge purposes. (See Association and Fraternal.)

Tenn., Jackson.—Emmett C. Wilson is reported to erect 8 brick stores on Shannon and Main Sts. and \$50,000 hotel; total cost \$100,000.

Tenn., Memphis.—J. W. Hull will erect store and apartment-house. (See Apartment-houses.)

Tenn., Memphis.—Pritchard Bros. Co. has plans by G. M. Shaw, Memphis, for building on Madison Ave.; 1 story; fireproof; cost \$12,000.

Tex., Dallas.—Labor Temple Building Assn. has plans for store and labor temple. (See Association and Fraternal.)

Tex., Dallas.—S. Kirkgard will erect 1-story brick store and 3 frame cottages; cost \$8750.

Tex., Denton.—W. B. McClurkin has plans for store and office building to replace burned structure; 80x120 ft.; plate-glass show windows; mezzanine floor in rear, 40x90 ft.; skylights; 3 entrances; cost \$25,000. (Lately noted.)

Va., Richmond.—Thos. P. Bryan will erect 2-story brick store at 1205 W. Broad St.; cost \$6000.

THEATERS

Ala., Tuscaloosa.—Joseph Saks is reported to erect airdome.

D. C., Washington.—E. R. Fox, 1311 H St. N. W., has plans by Spelden & Spelden, 1403 New York Ave., Washington, for dance hall addition to Garden Theater at 21st and I Sts.; 30x115 ft.; brick, steel and concrete; slag roof; steam heat from present plant; electric lights; cost about \$10,000; construction by owner.

Md., Baltimore.—Colman Klein, 801 E. Baltimore St., will erect motion-picture theater at 801 E. Baltimore St.; 3 stories; fireproof; slag roof; cost about \$15,000.

Md., Baltimore.—A. B. Price is having plans prepared by Wm. O. Sparklin and Geo. S. Childs, 502 Law Bldg., Baltimore, for alterations and addition to building at 617-19 North Ave. for motion-picture theater; auditorium 40x100 ft.; lobby 22x50 ft.; brick and metal; slag roof; steam heat; electric light, gas emergency; plans ready about April 1. (Lately noted.)

N. C., Edenton.—J. H. McMullan, Jr., is promoting organization of company to erect building on Main St. for opera-house and 2 stores; 60x90 ft.; ordinary construction; opera-house fireproof; cost \$30,000 without mechanical equipment.

Tex., Longview.—F. T. Kemberl will erect theater to replace structure previously noted damaged by fire; 53x140 ft.; fireproof; heating and lighting not decided; contract to be let in 30 days; cost \$70,000 without mechanical equipment.

W. Va., Clarksburg.—Frank R. Moore is reported to erect opera-house; seating capacity 1000.

WAREHOUSES

D. C., Washington.—Fries, Beall & Sharp Co., 522 10th St. N. W., opened bids to erect warehouse at 734-36 10th St. N. W.; 7 stories; reinforced concrete; steel sashes; C. J. Cassidy Co., 716 Southern Bldg., Washington, is lowest bidder at \$33,622; C. A. Didden & Sons, Archts., 424 Corcoran Bldg., Washington. (Lately noted.)

La., Abbeville.—Vallee Warehouse & Mercantile Co. organized with \$30,000 capital stock.

Md., Baltimore.—A. Kohlepp, 404 N. Howard St., has plans by John K. Stack, 12 E. Lexington St., Baltimore, for warehouse at 616-18 N. Eutaw St.; reported 28x39.10 ft.; 3 stories; brick; cost \$7200; Cowan Building Co., 106 W. Madison St., Baltimore, probable Contr.

Md., Baltimore.—I. J. Schlesinger, 2011 Madison Ave., has plans by J. C. Spedden, 1640 Hanover St., Baltimore, for warehouse at 511 S. Sharp St.; 3 stories and basement; 18x66 ft.; brick; composition roof; electric lights; freight elevator; cost about \$5000; bids due Mch. 20.

Md., Baltimore.—J. W. Allers & Son, 1138 S. Charles St., have plans by J. C. Spedden, 1640 Hanover St., Baltimore, for warehouse at Charles and West Sts.; 2 stories, 65 ft.

BUILDING CONTRACTS AWARDED

APARTMENT-HOUSES

D. C., Washington.—J. B. Colburn let contract to A. F. Fox Co., Realty Bldg., Washington, for apartment-house at 718 18th St. N. W.; 6 stories; 56 suites; tapestry brick; stone trimmings; cost \$65,000; Spelden & Spelden, Archts., 1403 New York Ave. N. W., Washington.

Fla., Tampa.—J. H. Pratt let contract to erect store and apartment-house. (See Stores.)

Ga., Atlanta.—P. H. Norcross for V. C. Norcross has plans by Horace E. Hammond, 1429 Candler Bldg., Atlanta, and let contract to Gude & Co., Grant Bldg., Atlanta, to erect apartment-house; 65x105 ft.; ordinary construction; 2 stories; brick veneer; 12 suites; tar and gravel roof; cement sidewalks; vapor heat; cost \$30,000 without mechanical equipment.

Md., Baltimore.—Normandie Apartment Co. has plans by Otto G. Simonson, Casualty Tower Bldg., and let contract to West Construction Co., Knickerbocker Bldg., both of Baltimore, to erect apartment-house on St. Paul St. near 27th St.; 4 stories; 50x140 ft.; brick; slag roof; steam heat; gas and electric light; cost about \$60,000; garage in rear; 5 individual compartments.

Mo., St. Louis.—Wm. H. Beerman let contract to J. H. Puesser, St. Louis, to erect 2-story tenement-house at 2257 Harris St.; cost \$4600.

Mo., St. Louis.—E. H. Pipe Realty Co., 721 Chestnut St., has plans by and let contract to E. H. Pipe to erect flats at 3311-15 Arsenal St.; 25x42½ ft.; ordinary construction; composition roof; furnace to cost \$250; cost \$6000 without mechanical equipment. (Lately noted.)

Mo., St. Louis.—C. H. Horstmann let contract to Erdbruegge & Co., St. Louis, to erect two 2-story tenement-houses at 4190-92 and 4191-93 Farlin St.; cost \$13,000.

Mo., St. Louis.—F. Munchow let contract to G. Halla, St. Louis, to erect 2-story tenement-house at 4313-15 W. Papin St.; cost \$5000.

Mo., St. Louis.—Stella Realty Co. let contract to M. Koheo, St. Louis, to erect 2-story tenement-house at 5059 Northland St.; cost \$3200.

Tex., El Paso.—Ayres Apartment Co. let contract to Phoenix-El Paso Bldg. Co., El Paso, to erect addition and improve apartment-house; cost \$8000 to \$10,000.

ASSOCIATION AND FRATERNAL

Va., Clifton Forge.—F. O. E. let contract to A. G. and B. H. Glidd, Covington, Tenn., to erect building; pressed brick.

BANK AND OFFICE

Ga., Atlanta.—Wells Bros. Co., Riggs Bldg., Washington, D. C., general contractor to erect store and office building for Connally Realty Co., let contract to Levering & Garrigues Co., 552 W. 23d St., New York, for about 750 tons of steel for same, and it will begin construction by Apr. 15, completing same in about 4 weeks; 80x102 ft.; fireproof; tile and slag roof; electric elevators; total cost \$300,000; W. L. Stoddard, Archt., 9 E. 40th St., New York. (Lately noted.)

square; cost about \$6000; bidders are R. R. Mason, 308 W. Madison St.; Fidelity Construction Co., 1700 W. Lexington St.; John S. Busiek, 2811 Raynor Ave.; J. L. Robinson Construction Co., Knickerbocker Bldg.; J. J. Walsh & Son, 1533 Maryland Ave.; Arthur F. West, 15 E. Fayette St., all of Baltimore; bids due Mch. 22.

Md., Baltimore.—Board of Awards receives bids until Mch. 24 to alter and repair warehouse. (See City and County.)

Md., Baltimore.—W. G. Wimmer, 37 E. Cross St., has private plans for and let contract to Henry S. Rippel, 7 Clay St., Baltimore, to erect warehouse at 37 E. Cross St.; 3 stories; brick and concrete; slag roof; electric light; freight elevator; cost about \$5000.

N. C., High Point.—High Point Warehouse & Storage Co. Incptd. with \$125,000 capital stock by H. D. Sears, F. M. Pickett and R. H. Walker.

Tex., El Paso.—A. Zelman has plans by Thorman & Co., El Paso, for warehouse; 3 stories; brick; cost \$15,000 to \$20,000.

Tex., Galveston.—E. H. Perry & Co. is reported to erect additional cotton sheds between 28th and 29th Sts. and between Avenues B and C; 165x196 ft.; cost \$3500.

Tex., Tioga.—A. Averitt will erect brick warehouse; 24x64 ft.

Ky., Frankfort.—State National Bank let contract to Bankers' Building Bureau, 106 E. 19th St., New York, to erect bank building; fireproof; terra-cotta construction; cost about \$30,000; Weber, Werner & Adkins, Archts., Cincinnati. (Previously noted.)

La., Rayne.—James L. Craig let contract to erect theater and office building. (See Theaters.)

Mo., Jefferson City.—Jefferson Investment Co. let contract to G. W. Miller & Co., Carthage, Mo., to erect building at High and Madison Sts.; 68x92 ft.; 7 stories; fireproof; composition roof; combination heating plant; electric lights; sidewalks to cost \$250; also let contract to Trussed Concrete Steel Co., Youngstown, O., for reinforcing steel, and to Christopher & Simpson Iron & Steel Co., St. Louis, for iron and steel, these two to approximate \$22,000; building to cost \$120,000 without mechanical equipment; Miller & Miller, Archts., Trust Co. Bldg., Jefferson City. Address general contractors. (Previously noted.)

N. C., Greenville.—National Bank let contract to H. M. Wade Mfg. Co., Charlotte, N. C., to install fixtures, and to Mosler Safe Co., Canton, O., for equipment of vaults in building under construction; main fixtures of Tavenelle marble and all woodwork of mahogany; vaults to be 2-story effect, having 3 separate vaults, one equipped with safety-deposit boxes.

Tex., Blue Ridge.—Guarantee State Bank let contract to G. R. Holt, Anna, Tex., to erect bank building and 2 stores, 20x75 ft.; mill construction; tar and gravel roof; stoves; also let contract to Jim Hamilton for brick work; cost \$6000 without mechanical equipment; John Tulloch, Archt., Sherman, Tex. (Lately noted.)

Tex., Smithville.—Schumacher Co. let contract to erect building for offices, etc. (See Stores.)

CHURCHES

Ark., Conway.—Methodist Church let contract to E. W. Jenkins, Conway, to erect building at Prince and Clifton Sts.; fireproof; tile roof; hot-water heat; electric lights; cost \$60,000 without mechanical equipment; Adams & Courtenay, Subcontrs., Conway; Geo. W. Kramer & Son, Archts., 1 Madison Ave., New York. (Lately noted.)

Mo., Kansas City.—Second Presbyterian Church let contract to J. C. Long, 3332 Summit St., Kansas City, to erect church and Sunday-school at 55th and Oak Sts.; 50x90 ft.; chapel 50x70 ft.; ordinary mill construction; slate or tile roof; steam heat; electric lights; cost \$50,000 without mechanical equipment; Shepard, Farrar & Wiser, Archts., Kansas City. (Lately noted.)

Tex., Texas City.—Texas City Presbyterian Church let contract to Monasmith & Buchhorn, Galveston, to erect building at 10th Ave. and 3d St.; 24x40 ft.; Rev. Chas. R. Nugent, pastor.

W. Va., Logan.—Aracoma Baptist Church let contract to erect building; Toronto brick; white limestone trimmings; art glass windows of Gothic design; bowled floor in auditorium.

CITY AND COUNTY

Fla., St. Augustine.—Jail.—St. John's County Commrs. let contract to Southern

structural Steel Co., Birmingham, Ala., and San Antonio, Tex., for cellwork and repairs to jail according to plans by Pauly Jail Building Co., St. Louis; construction begins at once. (Lately noted.)

Tex., Gainesville—Jail.—Cooke County Commrs. let contract to erect \$15,000 jail.

DWELLINGS

Ark., Little Rock.—Mrs. Helen Loeb let contract to Norris & Rucks, Little Rock, to erect two 2-story residences at 807 W. 3d St. and 311 Ringo St.; cost \$5000.

D. C., Washington.—Chas. A. Waldon has plans by Ed P. Simons, 514 Rhode Island Ave., and let contract to J. W. Wignall, Brookland, D. C., to erect dwelling at 1022 Newton St. N. E.; 3 stories; 44x28 ft.; brick; slate roof; hot-water heat; electric light; cost \$6000.

D. C., Washington.—John S. Flannery let contract to Richardson & Burgess, 1413 H St. N. W., Washington, to erect residence at 311 California Ave. N. W.; colonial style; 3 stories; brick; cost about \$20,000; Marsh & Peters, Architects, 530 13th St. N. W., Washington.

Fla., Miami.—Dale Miller Realty Co. let contract to erect dwelling.

Fla., Seabreeze.—Philo Jacques, Morris-town, N. J., let contract to L. Z. Burdick, Daytona Beach, Fla., to erect bungalow.

Ga., Atlanta.—Mrs. Mary R. Willis will erect 2-story frame residence at 296 E. 10th St.; cost \$3000; B. R. Padgett, Contr., Atlanta.

La., Oberlin.—Miss Cornelius Rice let contract to S. J. Walker, Reeves, La., to erect residence; cost \$3000.

Md., Baltimore County.—John D. Creecy is reported to have let contract to John Sheridan, 25 E. North Ave., Baltimore, to alter and erect addition to dwelling; cost \$5000.

Md., Baltimore.—Jas. O. Langrall, 20 N. Patterson Park Ave., has private plans for and let contract to Edward G. Turner, 15 E. Fayette St., Baltimore, to erect dwelling on Garrison Ave. near Bateman Ave.; frame; slate roof; hot-water heat; cost \$6000. (Lately noted.)

Md., Baltimore.—John W. Spence is reported to have plans by Chas. M. Anderson, 24 N. Charles St., Baltimore, and let contract to Adam Kratz, 118 S. Carrollton Ave., Baltimore, to erect dwelling at Liberty Heights and Forest Park Aves.

Mo., St. Louis.—Herman Thoenes let contract to erect residence; cost \$3750.

Mo., St. Louis.—Johanna Seyfarth let contract to C. Seyfarth, St. Louis, to erect 2-story brick dwelling at 3258 Northland St.; cost \$3500.

N. C., Charlotte.—John M. Scott let contract to Thies-Smith Realty Co., Charlotte, to erect residence on S. Tryon St.; about 7x70 ft.; brick veneer; slate or tile roof; hot-water heat; cost \$15,000 to \$20,000; Wm. H. Peeps, Archt., Charlotte. (Lately noted.)

S. C., Spartanburg.—Lionel D. Lawson let contract to erect residence at Fairview and Maple Sts., Converse Heights Subdivision; cost \$3000.

Tenn., Bristol.—A. W. King let contract to erect residence; 2 stories; brick veneer; 40x55 ft.; hardwood finish; metal tile roof; tile bathrooms; sanitary plumbing; hot-water heat; garage 18x20 ft.; Clarence B. Kearlott, Archt., Bristol.

Tenn., Bristol.—John O. Simpkins let contract to erect residence; 2 stories; 42x33 ft.; brick veneer; hardwood finish; sanitary plumbing; metal roof; cost \$3500; Clarence B. Kearlott, Archt., Bristol.

Tenn., Memphis.—Caruthers Ewing let contract to E. J. Pearson, Memphis, to repair residence lately noted damaged by fire; shingle roof; cost about \$8000; J. J. Regan, Archt., Memphis Trust Bldg., Memphis.

Tenn., Murfreesboro.—R. W. Hale let contract to E. G. Holladay Co., Noel Block, Nashville, to erect residence; colonial style; cost \$25,000.

Tex., Abilene.—W. A. Ward of Misfit Clothing Co. let contract to H. H. Haywood, Abilene, to erect 6-room bungalow at 6th and Elm Sts.

Tex., Gonzales.—W. H. Kokernot let contract to erect brick residence; cost \$25,000 without mechanical equipment; green tile roof; Henry T. Phelps, Archt., San Antonio. (Lately noted.)

Tex., Denton.—L. D. Borden let contract to Overall & Naugle, Denton, to erect residence on W. Hickory St.; cost \$2500.

Tex., Galveston.—Geo. N. Copley let contract to Thos. Quilter, Galveston, to erect residence at 25th St. and Broadway; 60x40 ft.; frame; slate roof; \$500 hot-air heating

plant; rigid conduit lighting system; cost \$11,000 without mechanical equipment; Anton F. Korn, Jr., Archt., 412 Security Bldg., Galveston. Address Contr. (Lately noted.)

Tex., Texas City.—Chas. H. Cassell let contract to V. J. Lauerman, Box 422; D. F. Merritt and J. S. Smith, all of Texas City, to erect residence; 60x40 ft.; 2 stories; 10 rooms; frame; asbestos shingles; cost \$4500; C. W. Black, Archt., Texas City. (Lately noted.)

Va., City Point.—E. I. Dupont-de Nemours Powder Co., Wilmington, Del., let contract to C. W. Hancock & Sons, Lynchburg, to erect 60 dwellings in addition to those lately erected.

Va., Norfolk.—Dr. R. L. Williams let contract to R. R. Richardson & Co., Norfolk, to erect residence at Stockley Gardens and Raleigh Ave.; Washington hydraulic brick; granite trimmings; mill construction; tile roof; passenger elevator; cooling system; 14 rooms and 5 baths; art-glass dome; cost about \$36,000; J. W. Lee, Archt., Norfolk. (Henry Henke, Houston, Tex., lately noted to erect this residence.)

Va., Richmond.—Chas. Wagner, 10 S. Beach St., let contract to Davis & Archer, 2515 Hanover Ave., Richmond, to erect residence at 309 W. Franklin St.; 55x22½ ft.; ordinary construction; tin roof; hot-water heat; electric and gas lights; cost \$5000 without mechanical equipment; C. H. Archer, Archt., 2516 Hanover Ave., Richmond. Address Contr.

W. Va., Huntington.—Dr. E. B. Gerlach let contract to P. S. Smith, Proctorville, O., to erect residence at 26th St. and 3d Ave.; 27x34 ft.; ordinary pressed brick; slate roof; built-in grates; electric lights; cost \$3500 without mechanical equipment; H. E. Lewis, Archt., 39 22d St., Huntington. (Lately noted.)

GOVERNMENT AND STATE

D. C., Washington.—State, War and Navy Building.—Government will remodel plumbing of State, War and Navy Bldg.; about 500 fixtures; marble floor and side slabs; metal laths; cost about \$50,000; Frank Upman, Archt.; Standard Engineering Co., Contr.; both of Woodward Bldg., Washington, D. C. (Lately noted.)

Fla., Jacksonville.—Postoffice.—Atlantic National Bank let contract to Buckland & Fitchner, St. James Bldg., Jacksonville, to erect substation postoffice on Bay St.; concrete, hollow tile and brick; 2 stories; fireproof vault; electric freight elevator and dumbwaiter; metal windows and doors glazed with wire glass; front finished with hand-tooled concrete and face brick with stone coping and sills; cost \$9900 without mechanical equipment; furnishing and accessories \$6000 additional; wiring, elevators and heating under separate contracts; Mark & Sheffall, Architects, Jacksonville. (Lately noted.)

Mo., St. Louis.—Federal.—Treasury Dept., Oscar Wenderoth, Supervising Archt., Washington, D. C., let contract at \$38,627 to S. Faith & Co., Philadelphia, Pa., for plumbing system in Federal building.

Mo., St. Louis.—Custom-house.—Treasury Dept., Oscar Wenderoth, Supervising Archt., Washington, D. C., let contract to Wharton Building Co., 2424 Oriole Ave., St. Louis, to remodel custom-house; cost \$38,589; plumbing, heating, gaspiping and electric conduits reserved. (Previously noted.)

Tenn., Covington.—Postoffice.—Treasury Dept., O. Wenderoth, Supervising Archt., Washington, D. C., is reported to have let contract to Geo. W. Stiles Construction Co., 1136 Rookery Bldg., Chicago, to erect post-office; 1 story and basement; probably fireproof; composition roof; steam heat to cost \$400; city lighting; cost without mechanical equipment about \$35,000. (Previously noted.)

Okla., El Reno.—Postoffice.—George W. Stiles Construction Co., 1036 Rookery Bldg., Chicago, general contractor to erect post-office building, let following subcontracts: Cut stone, Henry Struble Cut Stone Co., Bedford, Ind.; terra-cotta, Atlantic Terra-Cotta Co., New York; granite, Stone Mountain Granite Corp., Stone Mountain, Ga.; cement, Oklahoma Portland Cement Co., Oklahoma City, Okla.; millwork, Grand Rapids Lumber Co., Grand Rapids, Mich.; structural steel, Gage Structural Steel Co., Chicago; plans by Oscar Wenderoth, Supervising Archt., Treasury Dept., Washington, D. C., call for structure 50x80 ft.; fireproof; 5-ply tar and gravel roof; steam-heating plant to cost \$4000; cost \$75,000 without mechanical equipment. (Lately noted.)

Tex., Fort Worth.—Postoffice.—North Fort Worth Townsite Co., 2351 N. Main St., let contract to Butcher & Sweeney, Fort Worth, to erect North Side Branch Postoffice at

2357 N. Main St.; 33x77 ft.; ordinary construction; piped for natural gas heat; electric lights; cost \$4000 without mechanical equipment; Sanguinett & Staats, Architects, Fort Worth. Address owner. (Lately noted under Stores.)

HOSPITALS, SANITARIUMS, ETC.

Md., Easton.—Emergency Hospital let contract to W. A. Richman, Moorestown, N. J., to erect hospital; 118x40 ft.; semi-fireproof; slag and slate roof; low-pressure hot-water heat; electric elevator; light from city plant; Guy King Co., Archt., 1513 Walnut St., Philadelphia, Pa.; address architect or contractor. (Lately noted.)

Miss., Hattiesburg.—Dr. W. W. Crawford let contract for 10 additional rooms to South Mississippi Infirmary.

HOTELS

Ga., Atlanta.—Hugh Richardson let contract to alter building for stores and hotel. (See Stores.)

MISCELLANEOUS

Fla., Tampa.—Laboratory.—J. H. Pratt let contract to G. A. Miller, 28 Petteway Bldg., Tampa, to erect laboratory at Twigg and Marion Sts.; 60x100 ft.; ordinary construction; Barrett specification roof; city lights; cost \$15,000 without mechanical equipment; F. J. Kennard, Archt., Tampa.

Mo., St. Louis.—Clubhouse.—Missouri Athletic Assn. let general contract at \$302,000 to Wm. Sutherland Building & Contracting Co., 7th and Chestnut Sts., St. Louis, to erect clubhouse; also let contracts to Jas. Bright at \$115,985 for concrete and steel and F. E. Newberry & Co. at \$32,663 for heating and ventilating, both of St. Louis; Wm. B. Ittner and G. F. A. Brueggeman, Architects, Third National Bank Bldg., St. Louis; structure to be of Ste. Genevieve limestone or Bedford stone; fireproof; 112x150 ft.; 10 stories; composition roofing; heating plant to cost \$50,000; electric elevator to cost \$30,000; foundation started; total cost \$600,000. (Lately noted.)

Tex., Fort Worth.—Undertaking.—Fort Worth Undertaking Co. let contract to Van Horn-Shaw Construction Co., Fort Worth, to erect 2-story brick undertaking establishment at Texas and Lamar Sts.; cost \$20,000.

RAILWAY STATIONS, SHEDS, ETC.

La., New Orleans.—Trans-Mississippi Terminal R. R. Co. let contract to J. W. Thompson, Wainwright Bldg., St. Louis, to erect outboard freighthouse and passenger depot and yards in connection with terminal; reported cost \$250,000 each. (Previously noted.)

S. C., Spartanburg.—Southern Ry. Co., W. H. Wells, Ch. Engr. Constr., Washington, D. C., let contract to Elkan-Tufts Construction Co., Coco-Cola Bldg., Baltimore, to construct underground waiting-rooms and passageway in connection with union station reported to cost \$40,000. (Lately noted to have let contract for excavation.)

Tex., Pampa.—Panhandle & Santa Fe Ry., F. M. Blisbee, Ch. Engr., Amarillo, Tex., let contract to W. M. Rice, Amarillo, Tex., to erect combination passenger and freight station; 26x131 ft.; concrete and brick; tile roof; hot-water heat; electric lights; cost \$15,000 without mechanical equipment; E. A. Harrison, Archt., Chicago. (Lately noted as Gulf, Colorado & Santa Fe Ry.)

SCHOOLS

Fla., Clermont.—School Trustees let contract to Moore & Co., Clermont, to erect school; 61x60 ft.; asbestos shingle roof; Ideal steam radiation; electric lights; cost \$10,000 without mechanical equipment; subcontracts to include steam heating and electric wiring; W. H. Carr, Archt., Leesburg, Fla. Address general contractor. (Lately noted.)

Fla., Perry.—Taylor County School Board let contract to L. J. Wilson, Perry, to erect 2-story annex to high school; 80x80 ft.; brick; galvanized-iron roof; hot-air heating plant; cost \$15,000; S. R. Duval, Archt., Perry.

Tenn., Chattanooga.—Baylor University School let contract to Edwards & Frankhouse, Chattanooga, for brick work on 3 structures; main school building of rough dark-red brick; 150x41 ft.; study hall on lower floor, 63x25 ft., surrounded by 8 classrooms, each 19x16 ft.; residence for associate principal in rear; upper floor for boarding-rooms; entrance to main structure through hall 25x50 ft.; gymnasium 50x30 ft.;

total cost \$54,000; W. T. Downing, Archt., Atlanta, Ga. (Lately noted.)

Tex., El Paso.—City let contract to R. E. McKee, El Paso, to erect addition to Beall School, according to plans by Trost & Trost, El Paso; 1 story; 6 rooms; cost \$12,000.

Tex., Fort Worth.—Southwestern Theological Seminary, Dr. Lee R. Scarborough, Pres., let contract to Drake-Brannum Constr. Co., Fort Worth, to complete interior of building already completed on exterior; construction to cost about \$30,000. (Lately noted.)

Va., Mataboa.—School Trustees let contract to G. B. Keeler & Son, Petersburg, Va., to erect school; frame; slate roof; 8 rooms, and library; heating and ventilating system; cost about \$15,000.

STORES

Ala., Bessemer.—Dr. J. C. Curry let contract to Central Lumber Co., Bessemer, to erect 2 brick stores; cost \$7000.

Ark., Little Rock.—E. E. Moss let contract to M. O. Wendler, Little Rock, to erect 2-story brick building at 312-14 Louisiana St.; cost \$15,000.

Ark., Washington.—T. J. Garner has plans by and let contract to A. B. Cupp, Nashville, Ark., to erect store building; 50x100 ft.; ruberoid 3-ply roofing; cost \$3000 without mechanical equipment.

Fla., Tampa.—J. H. Pratt let contract to G. A. Miller, Tampa, to erect building at Twigg and Jefferson Sts.; 2 stories; brick; 52½x50 ft.; lower floor for stores; upper floor for apartments; cost \$13,500.

Ga., Atlanta.—W. H. Roane let contract to Aiken L. Parr, Atlanta, to erect 1-story brick building at 59-61 Peachtree St.; cost \$6000.

Ga., Atlanta.—Hugh Richardson let contract to W. E. Mashburn, Silvey Bldg., Atlanta, to alter building at 166-68 Peachtree St. for stores and hotel; ordinary construction; composition roof; contracts for heating, plumbing and electric work not yet let; cost \$3500 without mechanical equipment; A. Ten Eyck Brown, Archt., Atlanta.

Mo., St. Louis.—H. Gowdy let contract to J. Lanigan, St. Louis, to erect 2-story store at 1176-78 N. King's Highway; cost \$4000.

Md., Frederick.—Byerly estate let contract to Hahn & Batson, Frederick, to remodel building at 27-29 N. Market St.; will excavate cellar 2 ft. deeper, construct waterproof concrete floor and side walls, display windows, vestibule, replace supporting columns with steel girders; lower floor for stores; second floor, apartments; third floor, photograph gallery; Kepner & Smith, Architects, Frederick.

Mo., St. Louis.—E. C. Hilmer let contract to Mittendorf & Poehler, St. Louis, to erect building at 310-12-14 N. 3d St.; joist construction; metal studding; metal lath; copper skylights; ventilators; T. P. Barnett Co., Archt., Central National Bank Bldg., St. Louis.

N. C., Charlotte.—D. P. Hutchison let contract to J. A. Jones, Charlotte, to erect business building on Tryon St. to replace burned structure; 45x159 ft.; cost \$30,000; steel and lumber purchased.

Okla., Enid.—John Waken and George Kronopolus let contract to Everett & Wheeler, Enid, to erect store building; 25x110 ft.; 2 stories; brick; completion by May 1; cost \$6000; R. W. Shaw, Archt., Enid. (Previously noted.)

Tenn., Memphis.—Edw. Lehman let contract to H. J. Retew, Memphis, to erect store building at 135 Union Ave.; 1 story; brick; frontage 40 ft.; cost \$4000; completion in Apr.

Tex., Blue Ridge.—Guaranty State Bank let contract to erect building for store and bank. (See Bank and Office.)

Tex., Smithville.—Schumacher Co. let contract to H. W. Clark, Smithville, to erect store building; 40x60 ft.; plans include loading platform and offices.

Tex., Terrell.—J. S. Grinnen and F. H. Martin let contract to Zink & LaRoe, Terrell, to erect mercantile building; 50x112 ft.; ordinary brick construction; gravel roof; cost \$6000 without mechanical equipment; H. A. Evans, Terrell.

Tex., Texas City.—Sam Fridner, Galveston, let contract to Webb & Johnston, Texas City, to erect mercantile building; 65x50 ft.; semi-fireproof; tar and gravel roof; cost \$6000 without mechanical equipment; J. H. Phipps, Archt., Galveston. (Lately noted.)

Va., City Point.—C. W. Hancock & Sons, Lynchburg, Va., contracts to erect 2 stores.

THEATERS

La., Rayne.—James L. Craig has plans by and let contract to A. P. McNeil, Rayne, to erect theater and office building at Texas Ave. and 2d St.; 50x80 ft.; ironclad; iron roof; electric lights; cost \$2500 without mechanical equipment. Address owner. (See Machinery Wanted.)

WAREHOUSES

Md., Baltimore.—Baltimore Plumbing Supply Co., Isaac Frenkel, Prest., 1001 W. Baltimore St., has plans by Callis & Callis, 2055 Kennedy Ave., and let contract to Fidelity Construction Co., 1706 W. Lexington St., to

erect warehouse on N. Central Ave.; site 170x50 to 78 ft.; 3 stories and basement; brick; slag roof; 3-car railway service; electric elevator and light; hot-water heat; construction to be completed in 60 days; cost about \$15,000. (Lately noted.)

S. C., Donalds.—M. R. Dunn let contract to C. L. Searight, Donalds, to erect warehouse to replace burned structure; 26x40 ft.; composition roof.

Tex., Houston.—City municipal dock warehouse (contract lately noted let to Horton & Horton, Box 1454) will be 425 ft. long and 100 ft. wide; machinery and material bids all let; E. E. Sands, City Engr. (See Machinery Wanted.)

RAILROAD CONSTRUCTION

RAILWAYS

Ark., Snell.—Doniphan Lumber Co., Kensett, Ark., says that the railroad which it is building from Snell northeasterly will be continued for probably 15 mi., but it is strictly for logging and of temporary nature.

Fla., Fort Myers.—Fort Myers, Marco Bay & Miami R. R. Co. proposes to build from Fort Myers to Naples and Marco Bay on the west coast; thence easterly two-thirds of the way across the peninsula, and thence southeast to Miami, a total distance of 150 mi. About 18 mi. of trestle work will be required. W. J. Hildand, R. S. Hall and S. P. Hollinrake of Ocala and James R. Collins of Jacksonville are trustees. Route is level. Construction bids will be opened about July 1 this year. W. B. Clay, Arcadia, Fla., is Ch. Engr. Location surveys will begin about Feb. 20.

Fla., Lakeland.—G. C. Rogan, M. F. Hetherington, W. F. Sneed, S. F. Smith and A. J. Holworthy of the Lakeland Board of Trade are working on a plan for the construction of an interurban rapid transit line to connect Lakeland and several other important towns of Polk county, of which Bartow is the county-seat. It is said that purchase of \$1,000,000 of bonds is assured. A. J. Holworthy is Secy. of the Board of Trade.

Fla., Pensacola.—Gulf, Florida & Alabama R. R. Co. is announced, has placed \$1,000,000 of bonds with a syndicate and construction will be immediately resumed upon its extension from Broughton to a point on the Southern Ry. near Pine Hill, Ala. American Bridge Co. has contract for bridge over the Alabama River. G. A. Berry is V.-P. and Ch. Engr. at Pensacola.

Ga., Atlanta.—It is stated that steps will be taken to complete the proposed Atlanta & Carolina Interurban Ry. from Atlanta to Augusta, Ga., about 180 mi. Ronald Ransom is receiver. Burton Smith and Philip Alston, attorneys, represent the trustees and creditors.

Ga., Lula.—Lula-Homer R. R. Co. is receiving bids until Feb. 30 for construction of its proposed line from Lula to Homer, Ga., 14 mi., which includes 65,000 yds. of excavation, 42,000 yds. of embankment and 900 yds. of rock. Track to have 3000 ties per mi. and 60-lb. relaying rails. D. G. Zeigler, Lula, is Engr.

La., New Iberia.—Southwestern Traction & Power Co. will build extension from New Iberia to St. Martinsville, 12 mi. Work will be very light, with practically no bridging. Date of letting contracts indefinite. W. S. Henning, New Iberia, is Gen. Mgr. and Ch. Engr.

La., New Orleans.—The Public Belt R. R. Co. has under consideration a suggestion from Mayor M. Behrman that an extension be made to a point near the upper levee of Orleans parish to accommodate new industries and enterprises. W. B. Thompson is Actg. Prest. and W. J. Hardee is Ch. Engr. Address City Hall, New Orleans.

Md., Hagerstown.—Cumberland Valley R. R. Co. is reported surveying between Hagerstown and the Potomac River, about 10 mi., for a contemplated revision of line for lower grades. T. B. Kennedy, Chambersburg, Pa., is Engr.

N. C., High Point.—North Carolina Public Service Co., it is reported, will spend \$100,000 for improvements at High Point. E. C. Deal, Greensboro, N. C., is 1st V.-P. and Gen. Mgr.

N. C., Shelby.—Railroad contract recently let to W. T. Clement and L. J. Hawley has been, it is announced, reawarded to S. S. Royster and O. Elam of Shelby. This is for the proposed railroad from Shelby to Casar, N. C., 21 mi.

Okla., Tulsa.—A. J. Biddison, purchaser of the Oklahoma Union Traction Co. property, is quoted as saying that a new corporation will be organized with I. F. Crow

Prest. to construct an extensive interurban railway system in the northeastern part of Oklahoma. Extensions to the present property are proposed. Tulsa citizens are concerned.

Tenn., Oneida.—Oneida & Western R. R. has completed 11 mi. of its line from Oneida northwest to Albany, Ky., about 60 mi., of which 30 mi. from Oneida to the Don Place were awarded in October, 1913, to A. M. Cook of Oneida. Route is through rough and mountainous country. There will be 9 steel bridges from 46½ to 204 ft. long, deck plate girder and three truss spans. O. H. Anderson, Harriman, Tenn., is Prest. and Gen. Mgr., and A. W. Evans, Oneida, Ch. Engr. Besides O. H. Anderson, the directors are Hall Hagenrayer of Cincinnati, V.-P.; W. C. Anderson of Harriman, Secy. and Treas.; Moses Foreman, also of Harriman; H. R. Anderson and E. W. Christian.

Tex., Beaumont.—Texas & New Orleans R. R. Co. is asking for bids until Feb. 12 on grading about 3½ mi. of railroad from near Guffey to Chalmers, Tex. Address Agent, Beaumont, Tex., or Asst. Gen. Mgr., Houston, Tex.

Tex., Houston.—Ed. Kennedy, 916 Texas Ave., Houston, and associates have, according to a report from Richmond, Tex., 25 mi. southwest of Houston, submitted there a proposition to build an interurban railway to connect the two cities. Clifton Rice will make survey. T. B. Wessendorf is Chrmn., and E. D. Bell, Secy., of the Railroad Committee at Richmond.

Tex., Quitman.—The full list of officers of the Quitman Sulphur Springs & Great Northern Ry. Co., which proposes to build a line of 28 mi. between Quitman and Sulphur Springs, includes J. B. Goldsmith, Prest.; Quitman; J. A. McDonald, V.-P.; Sulphur Springs; F. A. Palmer, Gen. Mgr.; R. W. Low, Secy. and Treas., and B. F. Cathey, Gen. Atty., all of Quitman. Although the contract has not been awarded, it is expected that construction will begin not later than May 1.

Tex., Rusk.—Concerning the proposed extension of the Texas State R. R. from Palestine to Dallas, Tex., about 100 mi., C. H. Hurdleston, Mgr., says that the plan is at present in its infancy.

Va., Petersburg.—Petersburg & Appomattox Ry. Co., recently chartered with authorized capital of \$100,000, to build between Petersburg and City Point, Va., 10 or 15 mi., proposes to construct an electric railway. Preliminary surveys will begin immediately. T. M. Wortham of Richmond, Va., is Prest. Edwin Wortham is Electrical Engr.

W. Va., Charleston.—Charleston Interurban R. R. Co. will build the extension of the Kanawha Valley Traction line from Charleston to Montgomery via Marmet, Paint Creek, Cabin Creek, Coalburg and Handley, 25 mi., on which 2 mi. of track is completed. W. E. Chilton is Prest., and F. M. Staunton, Secy. and Treas., Charleston.

STREET RAILWAYS

D. C., Washington.—Washington & Maryland Ry. Co. has applied to the Public Utilities Com. of the District of Columbia for permit to build tracks from Kennedy and 3d Sts. N. W. to Ohio Ave. and 13th St. N. W., on Kansas Ave., 5th St., Rock Creek Church Rd., New Hampshire Ave., Sherman Ave., W St., 13th St., B St. and 12th St.

D. C., Washington.—Washington Ry. & Electric Co. has applied to the Public Utilities Com. for permit to issue \$8000 of 6 per cent. bonds to build tracks on Upshur St. from 8th St. to New Hampshire Ave. N. W.; C. P. King is Prest.

Va., Petersburg.—Virginia Ry. & Power Co. is reported considering an extension of its Grove Avenue railway from the intersection of Canal St. up to High St. near the baseball park. T. S. Wheelwright, Richmond, Va., is Prest.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers Record has received during the week the following particulars as to machinery and supplies wanted.

"WANTS"

Aluminum Sulphate.—Office E. E. Davis, Supt., City Water-works, Room 112, City Hall, Richmond, Va.—Bids until Feb. 26 for 800 tons aluminum sulphate, high basicity, for water clarification; containing 17 to 22 per cent. aluminum oxide; delivered f. o. b. Korah Station, Chesapeake & Ohio Ry., in barrels as required.

Automobile ("Jitney Bus") Line.—R. O. Purdy, Jr., care of Purdy & Bland, Sumter, S. C.—Data on installation and operation of "Jitney Bus Line," including cost, profits, details of operation, class of vehicles and relative expense as compared with street-car system of same capacity; for town now having no street line.

Automobiles, etc.—A. Sivarama Aiyer, City Paper Mart, Tuticorin, S. Madras, British India.—Interested in cycles, motor-cars and chassis. (See Paper, etc.)

Automobiles.—Abram de Sola, Box 95, Curacao, West Indies.—Interested (view to representation) in automobiles. (See Merchandise.)

Barrels.—Southern Menhaden Co., Fulton, Fla.—Addresses of barrel manufacturers.

Bathroom Specialties.—Horace B. Hammond, 1429 Candler Bldg., Atlanta, Ga.—Catalogues on bathroom specialties.

Bells (Electric).—J. Pierre Couve, 31a Crane Pl., Pitt St., Sydney, Australia.—Correspondence with manufacturers of electric household bells; 2½-in., 3-in. and 4-in., with wooden base (not iron base); cheap bells; view to representation.

Belt.—Williamson Light & Ice Co., O. B. Welch, Mgr., Williamson, W. Va.—To rent or buy 24-in. or 26-in. 80-ft.-long double leather belt.

Belting.—Williamson Light & Ice Co., Williamson, W. Va.—80-ft. by 26-in. second-hand belting.

Boats (Motor).—Lloyd H. Grandy, care B. E. Grandy & Sons, Alvin, S. C.—Catalogues and prices on motor boats, 30 to 60 ft. long, light draft.

Boiler.—Stanton Foundry & Machine Co., Palatka, Fla.—Price and description on 150 H. P. horizontal boiler; delivery Palatka.

Bolts and Nuts.—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Feb. 30 on steel bolts and nuts, schedule 803L, delivery Washington; also (bolts and nuts) schedule 803S, delivery Charleston, S. C.

Bottles.—T. B. Smith Machinery Co., Lexington, Ky.—Bottles.

Bottles and Jars (Glass), etc.—Robt. Benton, 1815 10th St., Wichita Falls, Tex.—Addresses of manufacturers of fancy paper boxes and printing matter for toilet articles, such as powder, tooth paste, liniments, etc.; also with makers of glass bottles and jars.

Boxes (Paper).—See Bottles and Jars.—Robt. Benton.

Brick.—T. I. Magill, Athens, Tenn.—Prices on one car brick, f. o. b. Athens.

Bridge (Railway Trestle).—See Railway Equipment, etc.

Bridge Construction.—Scott County Clerk's Office, Gate City, Va.—Bids Feb. 22 to build bridge across Cove Creek; superstructure, 54-ft. span; 12-ft. roadway; cement rubble substructure; plans and specifications at office of State Highway Com., G. P. Coleman, Commr., Richmond, Va., and office Clerk, Circuit Court, Gate City.

Buckets.—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Feb. 30 on 6000 iron or steel buckets, galvanized, schedule 804L, delivery Philadelphia, Norfolk, Brooklyn.

Building Materials, etc.—Jas. P. Sweeney, Suite 917, Robson-Prichard Bldg., Huntington, W. Va.—Catalogues, samples and prices on building materials, etc., of interest to architects.

Building Materials.—T. I. Magill, Athens, Tenn.—Prices on building materials for residence.

Building Materials, etc.—Victor Grimmer and Henry J. Toussaint, Citizens' Bank

Bldg., Tampa, Fla.—Manufacturers' catalogues and samples of building materials, etc., of interest to architects.

Canning Machinery.—Farmers' Compress & Warehouse Co., Chas. L. Gay, Prest., Montgomery, Ala.—Data and prices on canning equipment.

Car (Steel).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Feb. 30 on steel flat car, wooden floor, schedule 803S.

Cars.—See Logging Equipment.—Thaw & Williams.

Cars.—Pennsylvania Equipment Co., West End Trust Bldg., Philadelphia, Pa.—100 ton-capacity second-hand box cars.

Cars (Interurban Gasoline).—Birmingham & Southeastern Ry. Co., E. J. Pierce, Traffic Mgr., Union Springs, Ala.—Gasoline motor car for passenger service between Union Springs and Eclectic, Ala.

Cars (Tank).—Pennsylvania Equipment Co., West End Trust Bldg., Philadelphia, Pa.—Three 6000-gal.-capacity steel underframe tank cars, tested to 60 lbs. pressure, and equipped with steam coils; second-hand; meeting with all M. C. B. and I. C. C. specifications.

Cars.—Pennsylvania Equipment Co., West End Trust Bldg., Philadelphia, Pa.—Several cabooses, short passenger coach, cheap passenger coach to convert into camp car, cook car or cheap box car.

Celluloid, etc.—Lino Capietti, Rua de Novembro, 36-A, S. Paulo, Brazil.—Samples, prices, etc. (view to representation), on celluloid in sheets, rods, etc., for manufacturing stamped and pressed goods.

Chemical Laboratory Apparatus.—National Chemical Laboratories Corp., A. H. McKnight, Prest., 3335 7th St. N. W., Washington, D. C.—Prices on chemical laboratory outfit.

Cold-storage Equipment.—C. H. Kennedy, Palatka, Fla.—Data and estimates on cold dry-storage installation for seeds.

Cotton.—Lino Capietti, Rua de Novembro, 36-A, S. Paulo, Brazil.—Samples, prices, etc. (view to representation), on raw cotton for manufacturing thread and twine.

Creamery Equipment.—Stanton Dairy Products Corp., Geo. A. Smith, Mgr., Staunton, Va.—Prices on cream ripener, churn, starter can, pasteurizer motor can and bottle sterilizer; also refrigerating machine.

Crushers.—See Drying and Crushing Machinery.—Southern Drainage & Construction Co.

Crushing Rolls.—Alabama Graphite Co., Ashland, Ala.—Crushing rolls; 2 sets; 30 to 36-in. diam.; second-hand good condition considered.

Culvert.—Pinellas County Commrs., Clearwater, Fla.—Bids Apr. 6 on following corrugated iron culverts: 40 ft. 72-in., 18-gauge; 36 ft. 48-in., 12-gauge; 72 ft. 36-in., 14-gauge; 200 ft. 24-in., 15-gauge; 300 ft. 18-in., 16-gauge; 300 ft. 15-in., 16-gauge; 200 ft. 12-in., 16-gauge; 108 ft. 15-in., ½-round 16-gauge; bidders to show samples of 2-ft. length or over; Clements McMullen, County Highway Engr.

Cups (Grease).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Feb. 30 on 300 self-locking grease cups, schedule 803L.

Drill (Traction).—Thaw & Williams, Bell Block, 6th and Vine Sts., Cincinnati, O. Prices on used No. 3 Keystone traction drill State condition.

Drills.—See Machine Tools, etc.—Compania Anonima de Maquinaria Industrial.

Drying (Tomato Pulp) Machinery.—See Extracting Machinery, etc.—Lamar S. Wolf.

Drying and Crushing Machinery.—Southern Drainage & Construction Co., Kinston, N. C.—Prices and specifications on equipment for drying and crushing material for agricultural purposes.

Earthwork.—U. S. Engr. Office, W. G. Caples, Maj., Engrs., Queen and Crescent

Bids, New Orleans, La.—Bids until Mch. 25 to construct 309,000 cu. yds. earth work in Lower Tensas and Atchafalaya Levee Dist.; information on application.

Electric-light Fixtures.—James L. Craig, Rayne, La.—Prices on electric-light fixtures for office and theater building.

Electric-light Plant.—See Water and Light Plant.—Dresden, Tenn.

Electric-light Fixtures.—Building Committee, Grammar and High School, Bristol, Va.—Bids until Mch. 23 for electric-light fixtures; specifications from Clarence B. Kearfott, Archt., Galloway Bldg., Bristol, Tenn.

Electric-light Improvements.—Mayor (Fred I. Sutton) and City Council, Kingston, S. C.—Bids until Apr. 6 to improve electric-light plant; includes 300 K. W. engine-type generators, 2 belted generators, switchboard, 40 H. P. 4-valve engine, condenser, centrifugal pump and motor return tubular boilers; consider bids on alternates; building extension of present structures, station for centrifugal pumps and about 1000 ft. terra-cotta and cast-iron pipe line; specifications, etc., with W. B. Coleman, City Clerk, and obtainable from Consult Engr., Gilbert C. White, Charlotte, N. C.

Electrical Equipment.—T. I. Magill, Athens, Tenn.—Prices on electrical equipment for residence.

Electrical Machinery.—Williamson Light & Ice Co., Williamson, W. Va.—200 to 500 K. W., 2-phase, 60-cycle, 300 to 400 R. P. M., 2200-volt alternator with exciter.

Electric (Switchboard) Equipment.—Williamson Light & Ice Co., O. B. Welch, Mgr., Williamson, W. Va.—Instruments for temporary switchboard.

Electrical Machinery.—Williamson Light & Ice Co., O. B. Welch, Mgr., Williamson, W. Va.—Induction motors; 25, 7½ and 5 H. P.

Elevator (Grain) Machinery.—A. J. Martin, Augusta, Ga.—Prices and detailed description of machinery for grain elevator. (See Flour, Feed and Meal Mills.)

Enamel Brick.—W. A. Rayfield & Co., P. O. Box 649, Birmingham, Ala.—Prices on enamel brick for church at Albuquerque, N. M.

Excavation (Railway).—See Railway Equipment, etc.

Excelsior Machinery.—Tom B. Burnett Co., Dallas, Tex.—Addresses of manufacturers of machines for cutting excelsior.

Extracting Machinery, etc.—Lamar S. Wolff, care Indian River Citrus Growers' Assn., Mims, Fla.—Correspondence with manufacturers of machinery for extracting juice from tomatoes and oranges; for peeling oranges; for extracting essential oil from orange peelings; for drying tomato pulp for commercial uses; also special machinery for making tomato paste.

Fans (Steel Plate).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Mch. 30 on 40 steel plate fans, convertible blowers, schedule 8026, delivery Boston, Brooklyn, Norfolk, Charleston.

Fire Escapes.—Fred Hunt's Machine Shop, Somerset, Ky.—Fire escapes for 3 to 5-story frame and brick buildings.

Flour.—See Merchandise.—Tonna & Ghirlando.

Flour and Feed Mill.—A. J. Martin, Augusta, Ga.—Prices and detailed description of complete equipment (except power) for 100-bbl. flour and feed mill; also of grain elevator machinery.

Food Products.—See Merchandise.—Tonna & Ghirlando.

Forge Equipment.—See Machine Tools, etc.—Compania Anonima de Maquinaria Industrial.

Furniture (Chairs).—See Merchandise. Abram de Sola.

Furniture (School).—Building Committee, Grammar and High School, Bristol, Va.—Bids until Mch. 23 on school desks and opera chairs; specifications from F. B. Fitzpatrick, Supt., Bristol.

Gla (Moss) Machinery.—E. D. Fisher, Morrow, La.—Data and prices on moss gla machinery.

Glue (Liquid).—Southern Menhaden Co., Fulton, Fla.—Addresses of manufacturers of liquid glue.

Grading, etc.—W. H. Tracy, Commr. of Public Works, Bradenton, Fla.—Bids until Mch. 19 to grade Fairview Ave. from Stanton St. to Manatee River (width 20 ft.), and Chandler St. from Florida Ave. to Broad St. (width 30 ft.), both to be curbed on both sides with cement curbing; also grade Ohio Ave. from Richland to Sarasota Ave. (width

24 ft.), and curb on both sides with granite curbing; plans and specifications on file with City Engr. and may be obtained for \$2.

Handle and Spoke Machinery.—W. C. Hubbard, Appomattox, Va.—Addresses of manufacturers of machinery for making spokes and handles.

Handle (Broom) Machinery.—Morganton Handle Co., Morganton, N. C.—Broom-handle machinery.

Hardware.—See Paper, etc.—A. Sivarama Aiyer.

Hardware.—See Bolts and Nuts.—Navy Dept.

Hardware.—See Tools.—J. Pierre Couve.

Hoops (Barrel).—Maxton Mfg. Co., Maxton, N. C.—Hoops for potato barrels.

Horse Hair (Imitation) Machinery.—F. Wide, Engr., Channel View, 3 Walsingham Rd., Hove, Sussex, Eng.—Addresses of manufacturers of machinery to make imitation horse hair. (See Artificial Silk Machinery, etc.)

Iron Stairs and Enclosures.—Dr. Chas. H. North, Medical Supt., Dannemora State Hospital, Dannemora, N. Y.—Bids until April 1 for iron stairs and enclosures for southwest wing State Hospital for Insane Criminals; drawings, specifications, etc., obtainable from Dr. North.

Heating Plant.—T. I. Magill, Athens, Tenn.—Prices on hot-air or hot-water heating plant for residence.

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Horse Collar Machinery.—Southern Bagging Co., 739 Raleigh Ave., Norfolk, Va.—Addresses of manufacturers of machinery for making horse collars.

Ice Plant Machinery.—Williamson Light & Ice Co., O. B. Welch, Mgr., Williamson, W. Va.—Prices on ammonia condensers, fittings and supplies, belting, 25, 7½ and 5 H. P. induction motors; probably change from distilled to raw water ice.

Lathes.—See Machine Tools, etc.—Compania Anonima de Maquinaria Industrial.

Leather (Castor and Velours).—Bensusan, Sides & Co., Salonique, Greece.—Samples and prices—view to representation—on castor and velours leather; have orders for 100 doz. castors, black and choice A, B, C, 5 to 6 sq. ft. (Eng. measure) to the skin; also 150 doz. velours, black, first quality, and about 5 to 6 sq. ft. (Eng.) to the skin; strong leather. (Samples of both orders obtainable at Office of Manufacturers Record, Baltimore, Md.)

Locomotive.—See Logging Equipment.—Thaw & Williams.

Logging Equipment.—Thaw & Williams, Bell Block, 6th and Vine Sts., Cincinnati, O.—Prices on used 15 to 20-ton geared locomotive and 6 cars, 42-in.-gauge; good condition.

Lumber.—J. F. Wagner's Sons Co., 1145 7th St., Louisville, Ky.—T. and G. lumber; 13-16-in. thick, so can be used on both sides for underwriters' tin-clad fire doors; lumber to be from 4 in. to 7½ in. wide when dressed; various lengths; free from sap knots; will need carloads.

Machine Tools, etc.—Compania Anonima de Maquinaria Industrial, Apartado de Correos Num. 589, Serrano, 1, Madrid, Spain. Correspondence with manufacturers of tool machinery (lathes and drilling machines), tools, machinery for forge work.

Machinery.—See Paper, etc.—A. Sivarama Aiyer.

Manganese (Ferro).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Mch. 30 on 10,000 lbs. pulverized ferro-manganese, schedule 8042, delivery Philadelphia.

Merchandise.—Tonna & Ghirlando, 28 Blvd. Saint Denis, Paris, France.—Interested in prices on following with view to representation in France, Italy, Greece and N. Africa: Flour and alimentary products, cotton oil, hospital and medical supplies, dry goods, hosiery, shoes for soldiers, nails, skins, leather, soap and perfumery, writing paper, etc.; quote prices c. i. f. ports in France, Italy, Greece, etc.

Merchandise.—Abram de Sola, Box 95, Curacao, West Indies.—Interested (view to representation) in various lines, including white enameled-ware (similar to that exported from Germany); imitation maple, walnut and golden oak chairs, with cane seats, costing from \$5 to \$6 per doz., prices quoted f. o. b. New York; corn or cotton-seed oil, in 3 and 5-gal. tins, for table and cooking; flour; cornmeal; cattle food; lard;

India.—Prices (view to representation) on paper, stationery, hardware, glass and enamelware, sundries, metals, cycles, motors and chassis, machinery, tools, paints and varnishes, fancy goods, etc., and patent medicines. Send samples with quotations c. i. f. c., Indian ports.

Parers (Orange).—See Extracting Machinery, etc.—Lamar S. Wolff

Paving.—City of Selmer, Tenn., F. F. Hendrix, City Recorder.—Bids opened Apr. 10 to construct about 10,000 sq. ft. concrete sidewalks; D. T. Smith, Engr.

Paving.—City Commrs., Tulsa, Okla.—Bids until Mch. 22 to pave sections of Denver Ave., Jefferson St., Utica Ave., Trenton Ave., 19th St., etc.; plans and specifications on file with E. B. Cline, City Auditor.

Paving.—City Com., Polytechnic, Tex.—Bids until Mch. 22 to grade and gravel Ave. D, Ave. A, McKinzie St., Ave. H, etc.; plans and specifications on file with W. H. Brown, City Secy.

Paving.—Mayor and City Council, Cumberland, Md.—Bids at office of City Clerk, City Hall, until Apr. 5 for grading, curbing, paving and otherwise improving 16 streets; brick on concrete base; about 57,000 sq. yds., requiring 2,500,000 bricks; bids on whole or separate; plans and specifications at office of Jas. P. Gaffney, City Engr.

Paving.—City of Greenville, S. C.—Bids, addressed to Jno. B. Marshall, Mayor, until Mch. 30 on material and construction of about 20,000 sq. yds. street paving and 5000 sq. yds. sidewalk paving, with necessary granite curb, cement curb and gutter, and brick gutters; specifications, etc., office of C. P. Ballenger, City Engr.

Paving.—J. A. Harper, City Secy., Corsicana, Tex.—Bids until Mch. 22 to pave sections of W. 2d, E. 5th and E. 7th Aves.; material to be bitulithic on 5-in. gravel concrete foundation, brick on concrete foundation, asphalt macadam, asphaltic concrete, rock asphalt, concrete curbs, concrete gutters 18 in. wide, concrete gutters 24 in. wide, combination concrete curbs and gutters; specifications on file with City Secy.

Peanut Butter Machinery.—A. L. Kirby, Mena, Ark.—Data on manufacturing peanut butter and prices on machinery.

Peanut Roaster.—Edgar O. Oetgen Co., City Market Bldg., Savannah, Ga.—Addresses of manufacturers of peanut roasters.

Pipe.—City of Elba, Ala., W. M. Tucker, Mayor.—Prices on 12 to 4-in. sewer pipe and 6 to 4-in. iron water mains.

Pipe, Tubing and Fittings.—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Mch. 30 on composition pipe fittings, seamless drawn copper tubing, 1470 composition unions, delivery Brooklyn, N. Y.; seamless drawn brass pipe and 1100 lbs. seamless drawn copper pipe, delivery Norfolk; brass tubing, delivery Portsmouth, Norfolk; 4000 lbs. tubing for condenser ferules, delivery Boston—all schedule 8043; standard weight wrought pipe, schedule 8039, delivery Charleston, S. C.; 500 lbs. phosphor bronze tubing and miscellaneous annealed copper tubing, schedule 8032, delivery Newport, R. I.

Plumbing Supplies.—T. I. Magill, Athens, Tenn.—Prices on plumbing supplies for residence.

Punch.—Southern Equipment Co., North Birmingham, Ala.—Punch with 36-in. or 42-in. gap, capacity 5-in. hole in ½-in. plate; power or electric drive; new or second-hand.

Railway Equipment, etc.—Lula-Homer R. R. Co., D. G. Ziegler, Engr., Lula, Ga.—Bids on locomotives; passenger, express, mail, freight and flat cars; 14 mi. 60-lb. relaying rails; 3000 ties to mile; 3 passing side tracks; 3 spur tracks; 900-ft. trestle; 65,000 cu. yds. embankment; 42,000 cu. yds. rock.

Refrigerator.—See Creamery Equipment.—Staunton Dairy Products Corp.

Refrigerating Machine.—See Creamery Equipment.

Road Construction.—Aiken County Commrs., Aiken, S. C.—Bids until Apr. 3 at office U. S. Highway Engr., Western Carolina Bank Bldg., Aiken, to grade and surface with sand-clay South Carolina post road from corporate limit of Aiken to Aiken-Edgefield county line, 11½ mi.; 27,500 cu. yds. excavation and 18,000 cu. yds. sand-clay surfacing; plans may be seen and proposal forms obtained from office of above engineer; John Staubes, Ch. Commr.

Road Construction.—Highway Dept., Board of State Engrs., Room 104, New Orleans Court Bldg., New Orleans, La.—Bids until Mch. 20 to construct about 26 mi. main public highway from Covington to Slidell;

information as to location, character of work, etc., obtainable from Highway Dept.; W. E. Atkinson, State Highway Engr., New Orleans.

Road Construction.—Comms. Court of Harrison County, Marshall, Tex.—Bids until Apr. 6 to construct about 20 mi. graded and macadam highway in Road Dist. No. 1; plans at office of N. P. Turner, Highway Engr., Marshall, and specifications are obtainable after Mch. 15 on application to Engr.; Geo. L. Huffman, County Judge.

Road Construction.—Henrico County Supvrs., Richmond, Va.—Bids until Mch. 26 to grade, drain and improve (water-bound macadam) Hermitage Rd. between Richmond city limits and Bloomingdale, .63 mi.; also Chamberlayne Ave., Norwood Ave. and Brook turnpike from Richmond city limits to Solomon's Store, 3.43 mi.; grade, drain and improve with gravel surface 3.38 mi. New Market Rd.; plans and specifications on file at County Clerk's office and with State Highway Com.; specifications obtainable from G. P. Coleman, State Highway Commr., Richmond; blueprints of plans obtainable from Childrey & Co., Inc., Richmond, for 35 cents per set.

Road Machinery.—K. B. Harvey, Fort Myers, Fla.—To correspond with manufacturers of sand road-building machinery.

Road Roller.—Thaw & Williams, Bell Block, 6th and Vine Sts., Cincinnati, O.—Prices on 8 or 10-ton, 2 or 3-wheel, used road roller; state year built and condition.

Sand.—Alex. Wall Amusement Co., W. C. Freeman, Secy.-Treas., Anniston, Ala.—Correspondence with dealers in sand.

Scales.—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids Mch. 30 on 22 platform folding scales, schedule 3035, delivery Boston.

Seating.—See Furniture (School).—Building Committee, Bristol, Va.

Sewer Pipe.—T. I. Magill, Athens, Tenn. Prices on 1500 ft. sewer pipe, 6 in.

Sewer Construction.—Baltimore (Md.) Board of Awards.—Bids until Mch. 24 to construct Section No. 1 of Baltimore St. intercepter, Sanitary Contract No. 144; 1625 lin. ft. excavation for 33-in. sewer in rock tunnel, 850 cu. yds. excavation for 33-in. sewer in trench, 375 cu. yds. rock excavation for 33-in. sewer in trench, and 2040 lin. ft. 33-in. sewer; specifications and plans obtainable from Harry W. Rodgers, Secy. Sewerage Com., 904 American Bldg., for \$5; Chas. England, Chrmn. Sewerage Com.

Sewing Machines, etc.—See Merchandise.—Sind Supply Stores.

Shipyard Supplies.—F. O. Smith Shipbuilding & Drydock Co., 494 Argyle Ave., Norfolk, Va.—General shipyard supplies.

Silk (Artificial) Machinery, etc.—F. Wide, Engr., Channel View, 3 Walsingham Rd., Hove, Sussex, Eng.—Correspondence with manufacturers of machinery to manufacture artificial silk, imitation horse hair, etc.

Soap (Soft).—Southern Menhaden Co., Fulton, Fla.—Addresses of manufacturers of soft soap.

Springs (Coiled Brass).—H. Jeff Davis, Waynesboro, Ga.—Several thousand coiled brass springs of several sizes and designs.

Stain.—T. I. Magill, Athens, Tenn.—Prices on shingle stain.

Stairs.—See Iron Stairs and Enclosures.

Stationery.—See Merchandise.—Sind Supply Stores.

Sterilizer (Water).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Mch. 30 on water sterilizer with filter, schedule 3034, delivery Brooklyn, N. Y.

Theater Equipment.—James L. Craig, Rayne, La.—Prices on opera chairs, stage fixtures and scenery for theater.

Ties (Railway).—See Railway Equipment, etc.

Tile.—W. A. Rayfield & Co., P. O. Box 649, Birmingham, Ala.—Prices on tile for aisles in church at Albuquerque, N. M.

Tomato Paste Machinery.—See Extracting Machinery, etc.—Lamar S. Wolf.

Tools.—J. Pierre Couve, 31a Crane Pl., Sydney, Australia.—Interested, view to representation, in tools of all description, especially including screw-drivers, gimlets, borers, hammers, vices, spanners (screwed), wrenches, etc.

Toothpick Machinery.—Jackson Veneer & Box Co., West Jackson, Miss.—Addresses of manufacturers of toothpick machinery.

Water-works.—Comms. Public Works, 17 W. Main St., Union, S. C.—Bids until

Mar. 30 for material and machinery for water-works extension; includes 21,120 ft. 8-in., 1600 ft. 6-in. and 2000 ft. 4-in. cast-iron pipe; 24,000 lbs. pig lead; jute; 12,000 lbs. cast-iron specials; valves and boxes; 1400 G. P. M. centrifugal pump; 6 20 K. W. 6600-2200-volt transformers; 3500 lbs. No. 8 copper wire; R. A. Easterling, Engr., care Comms.

Water and Light Plant.—City of Dresden, Tenn., R. L. Suddath, Mayor.—Bids on equipment for water and light plant; includes engines and boilers; deep well, pump and strainer; 50,000-gal. tank on 100-ft. tower; 85,000-gal. pump and strainer; receiving basin; pipe, valves, hydrants, etc.; electric generator, switchboard station, line equipment and street-lighting fixtures; all material to be purchased by city and installed under supervision of engineer (Phil Porter, Clinton, Ky.), excepting tower and tank, power-house, etc., which will be let to contractors.

Water-works Supplies.—Office E. E. Davis, Supt. City Water-works, Room 112, City Hall, Richmond, Va.—Bids until Mch. 26 on following supplies and contract work: Gate valves, cast-iron pipe, special castings, 3-nozzle fire hydrants, valve boxes, meter boxes, pig lead, wiping solder, brass work, lead pipe and hauling; specifications at office.

Well-drilling.—A. R. Faucette, Secy. Water, Light & Power Committee, Burlington, N. C.—To correspond with contractors for drilling deep wells.

Wheels (Carriage).—King, Fox & King, Sandy Springs, S. C.—Addresses of manufacturers of buggy wheels.

Wire-working (Clothespin) Machinery.—Ingersoll Patent Clothespin Co., J. J. Schmidt, Prest., 610 Girard St., Houston, Tex.—Automatic machinery for making wire clothespins.

Woodworking (Heading) Machinery.—T. S. Vance, Warrenton, Va.—Prices on equipment for manufacture of barrel heads.

Woodworking Machinery.—See Hand and Spoke Machinery.

Woodworking Machinery.—See Toothpick Machinery.

FINANCIAL NEWS

The MANUFACTURERS RECORD invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

FINANCIAL CORPORATIONS

Fla., Arcadia.—The DeSoto National Bank is reported to have taken over the Commercial State Bank of Arcadia. Combined capital and surplus of the two institutions will be \$112,000. Wm. G. Welles is Prest.

Ga., Stateville.—Bank of Stateville has filed articles of incorporation; capital \$25,000. Incprts.: L. J. Cooper, Waycross, Ga.; J. G. Prine and T. M. Ray, Stateville, and others.

Ga., Thomson.—A new bank is reported being organized; J. T. Neal, V. P. Bank of Thomson, is said to be interested.

Ga., West End (P. O. Atlanta).—Bank of West End is chartered; capital \$25,000; incorporators, H. T. Kilpatrick, J. S. Sewell and W. M. Poole.

Ky., Bowling Green.—The Warren National Bank is reported consolidated with the American National Bank.

Ky., Middlesboro.—Middlesboro Savings & Building Assn. Incptd.; capital \$100,000; H. F. Hambricht, Prest.; W. V. Tennent, V. P.; F. Moomau, Secy., and C. F. Cleland, Treas. Business is to begin Mch. 20.

Mo., Kansas City.—Farmers' Loan & Trust Co., capital \$500,000, expects to begin business about April 1; Theodore C. Peltzer, Prest.; Blackmore Louis, V. P. and Secy.; Albert L. Reeves, Gen. Counsel, and J. L. Steele, Treas.

N. C., Raleigh.—Raleigh Fire Insurance Co. is reported chartered; capital \$50,000; surplus \$25,000.

Tenn., Memphis.—Vance Insurance Agency Incptd., capital \$5000; incorporators, G. C. Vance, W. F. Austin, W. H. Treadwell, G. Harry and Ray Mayston.

Tex., Irene.—First National Bank of Irene chartered; capital \$25,000; J. A. Christie, Prest.; W. R. Mason, V. P.; George Hammock, Cash. This succeeds Bank of Irene.

Tex., Lubbock.—The Lubbock State Bank and the First National Bank were merged under the name of the former institution, the consolidation becoming effective Feb. 15. Capital \$100,000. O. L. Slaton, Prest.; W. S. Posey, Cash.

Tex., Midland.—Guaranty Cattle Loan Co. chartered; capital \$50,000; incorporators, O. B. Holt, C. A. Goldsmith and W. R. Chancellor.

Tex., Waller.—Guaranty State Bank has begun business; capital \$10,000; C. H. Umland, Prest.; W. P. Castle, 1st V. P.; R. C. Mathews, 2d V. P.; A. W. Umland, Cash., and Terrell C. Mathews, Asst. Cash.

Va., Roanoke.—Shenandoah Life Insurance Co. will make application for charter. Officers: R. H. Angell, Prest., Roanoke; E. Lee Trinkle, V. P., Wytheville; W. J. Henson, Gen. Counsel; J. H. Dunkley, Medical Director; W. L. Andrews, Secy. and Treas., all of Roanoke.

NEW SECURITIES

Ala., Bessemer.—Bids will be received until noon Apr. 6 for \$30,000 5 per cent. school bonds. Address J. B. Houston, City Clerk.

Ala., Dadeville.—Election is soon to be called to vote on water-works bonds. Address The Mayor.

Ala., Gadsden.—\$240,000 5 per cent. 30-year Etowah county road bonds have been purchased by Gadsden National Bank, Gadsden, Ala.

Ala., Huntsville.—\$35,000 5 per cent. 20-year Madison county courthouse bonds have been purchased at \$710 premium by J. C. Mayer & Co., Cincinnati.

Ala., Phenix City.—Election is to be held Apr. 6 to vote on \$16,000 5 per cent. 20-year water-works bonds. Dr. Ashby Floyd is Mayor.

Ala., Tuscaloosa.—City is planning to issue \$20,000 of bonds for municipal wharf. Address The Mayor.

Ark., Fort Smith.—\$28,000 5 per cent. 20-year bonds water dist. No. 2 have been purchased by H. C. Speer of firm of Speer & Dow of Little Rock.

Ark., Gurdon.—City is reported receiving bids for \$102,000 water, light and sewer bonds. Address The Mayor.

Ark., Malvern.—Election is to be called to vote on bonds for water-works and sewerage system to cost \$115,000. Address The Mayor.

Fla., Arcadia.—Bids were received until March 16 by Clerk Circuit Court, De Soto county, for \$350,000 Dist. No. 5 road bonds. Address County Comms.

Fla., Bradentown.—\$250,000 Sarasota-Venice, Manatee county, road and bridge bonds are voted. Geo. W. Blackburn is Chrmn. County Comms. at Sarasota.

Fla., Clearwater.—The \$15,000 bonds Green Springs School Dist., Pinellas county, to be voted on April 2 are 25-year 6 per cents. Dixie M. Hollins is Secy. Board of Public Instruction.

Fla., Daytona.—\$22,000 5 per cent. 20-year water bonds have been purchased at par by local investors. Address The Mayor.

Fla., Ft. Myers.—\$30,000 street bonds are reported sold. Address The Mayor.

Fla., Ft. Myers.—Comms. Lee County are considering question of issuing \$100,000 of bonds for road in the western portion of county.

Fla., Homestead.—Election is to be held Apr. 9 to vote on \$415,000 school bonds. Address Board of Education.

Fla., Lake City.—Bids will be received until 8 P. M. Apr. 12 for \$79,000 5 per cent. 30-year validated redemption and improvement bonds, dated Oct. 1, 1913. Address G. A. Bule, Chrmn. Board of Public Works. Further particulars will be found in the advertising columns.

Fla., Miami.—It is now stated that election will be held in Dade county Apr. 13 to vote on \$100,000 of bonds for oiling roads in Homestead special road and bridge district. Address County Comms., S. A. Belcher, Chrmn.

Fla., Ocala.—\$75,000 electric-light bonds have been declared valid. Address The Mayor.

Fla., St. Augustine.—Application is to be made to the Legislature for authority to issue \$75,000 interest-bearing warrants for courthouse for St. Johns county. Address Board of County Comms.

Ga., Atlanta.—\$3,525,000 4½ 20-30-year State of Georgia refunding bonds were purchased by Asa G. Candler, Atlanta, at \$70,000 premium.

Ga., Ellaville.—\$10,000 5 per cent. 20-year \$1000 school bonds recently voted will soon

be put on the market. Address City Council or Mayor.

Ga., Macon.—\$150,000 hospital, \$130,000 street and \$30,000 sewer 4½ per cent. 30-year bonds are voted. Bridges Smith is Mayor.

Ga., Maun.—Bids for the \$2000 7 per cent. 20-year water-works bonds voted Mch. 5 will be received until April 1; denomination \$100. Address G. W. Huggins, Mayor.

Ga., Oakhurst, P. O. Atlanta.—Reported that plans are being made to issue bonds. Address The Mayor.

Ky., Brooksville.—Election is to be held in Bracken county June 15 to vote on \$40,000 road bonds. Address County Comms.

Ky., Hickman.—Election is to be held in Fulton county May 22 to vote on \$300,000 road bonds. Address E. J. Stahr, County Judge.

Ky., Louisa.—The election ordered for Mch. 15 to vote on \$100,000 road and bridge bonds has been called off. Address County Comms.

Ky., Paducah.—Report that McCracken county had voted on \$300,000 road bonds is denied.

Ky., Pineville.—Bids will be received until noon Mch. 29 by T. J. Asher, Judge Bell County, for \$250,000 5 per cent. road and bridge bonds.

Ky., Tompkinsville.—Election is to be held May 15 to vote on \$100,000 Monroe county road bonds. Address County Comms.

La., Alexandria.—\$25,000 Dist. 27, \$30,000 Dist. 20 and \$15,000 Dist. 23, Rapides parish, school bonds were purchased by the Whitney-Central Trust and Savings Bank, New Orleans, and the Rapides Bank of Alexandria, La.

La., Thibodaux.—Election is to be held in Lafourche parish Apr. 22 to vote on \$30,000 5 per cent. 40-year bonds Road Dist. No. 2. Address Police Jury.

La., Thibodaux.—An ordinance has been passed authorizing issue of \$105,000 bonds Road Dist. No. 1, Lafourche parish. Address Police Jury.

Mo., Hagerstown.—Ordinance has been prepared providing for the issuing of \$65,000 4½ per cent. series 1 park bonds. J. McP. Scott is Mayor.

Miss., Charleston.—Board of Supvrs. of Tallahatchie county proposes to issue \$30,000 bonds Road Dist. No. 2.

Miss., Jackson.—\$150,000 electric light and power plant bonds defeated.

Mo., Chillicothe.—\$135,000 5 per cent. 20-year \$1000 bonds to purchase and construct water-works plant were purchased by Wm. R. Compton Co., St. Louis, Mo., at \$100.5 premium. S. Hawkins is Mayor.

Mo., Marshall.—\$70,000 light and power plant bonds defeated; another election will be held; Ed H. Mitchell, Mayor.

Mo., Smithton.—\$8000 5 per cent. 4000 school-building bonds will soon be placed on the market. Address Board of Trustees.

N. C., Asheville.—Bill has passed the Legislature authorizing election to vote on \$300,000 school bonds. Address The Mayor.

N. C., Asheville.—\$50,000 5 per cent. 20-year funding bonds have been purchased at \$116 premium by Charles A. Webb, representing Well, Roth & Co., Cincinnati.

N. C., Bryson City.—Bids will be received until 1 P. M. April 10 by Board of Highway Comms., Swain Road Dist., Swain county, for \$100,000 5 per cent. road bonds maturing April 1, 1926, to April 1, 1945. Frank E. Fry is Secy.

N. C., Cary.—The town of Cary has been authorized by the Legislature to issue not more than \$20,000 of bonds to install and equip an electric-light plant. J. M. Templeton, Jr., is Mayor.

N. C., Charlotte.—Election is to be held March 30 to vote on \$150,000 school bonds. A. H. Wearn is City Clerk and Treas.

N. C., Charlotte.—\$30,000 6 per cent. incinerator bonds, payable \$4000 each year for 5 years, were purchased at private sale by the American Trust Co.

N. C., Dallas.—Bids will be received until 6 P. M. April 6 for \$10,000 6 per cent. 30-year funding bonds. Dr. S. A. Wilkins is City Treas. Further particulars will be found in the advertising columns.

N. C., Durham.—Application has been made to Legislature for authority to issue \$300,000 street-improvement bonds. Address The Mayor.

N. C., Fayetteville.—\$29,000 of bonds are reported purchased by Tillotson & Wolcott Co., Cleveland.

N. C., Jamestown.—Election will probably

[For Additional Financial News, See Page 62.]

Merchants-Mechanics National Bank

South and Water Sts. BALTIMORE, MD.
 DOUGLAS H. THOMAS, President
 JNO. B. RAMSAY, V.-P. and Chm. Bd. of Dir.
 JOHN B. H. DUNN, Cashier.
 Capital \$2,000,000 Deposits \$21,670,000
 Surplus and Profits \$2,175,000
 Accounts of Banks, Corporations and Individuals solicited.
 We invite correspondence.

Edwin Warfield, President

Fidelity and Deposit Company of Maryland

Home Office: Baltimore

Total Assets over \$11,000,000.00

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Largest and Strongest Surety and Casualty Company in the World

The National Exchange Bank of Baltimore, MD.

Hopkins Place, German and Liberty Streets
 Capital, \$1,000,000
 August 9th, 1913, Surplus and Profits, \$764,091.00
 OFFICERS
 WALDO NEWCOMER, President.
 SUMMERFIELD BALDWIN, Vice-Pres.
 R. VINTON LANSDALE, Cashier.
 C. G. MORGAN, Asst. Cashier.
 Accounts of Mercantile Firms, Corporations, Banks, Bankers and Individuals Invited.

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The First National Bank

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United States Depository and Disbursing Agent
 Capital - - - - - \$100,000
 Surplus and Undivided Profits - - - - - 40,000
 A general banking business transacted
 Special attention given to collections.

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We purchase SCHOOL, COUNTY and MUNICIPAL BONDS. Southern Municipal Bonds a Specialty.

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 W. M. ADDISON, Cashier

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CONDENSED REPORT TO COMPTROLLER**The First National Bank**

OF BIRMINGHAM, ALA.

ALABAMA'S FIRST MILLION-DOLLAR BANK

THURSDAY, MARCH 4, 1915.

RESOURCES

Loans and Discounts.....\$9,012,215.97
 Overdrafts.....35.85
 U. S. Bonds (Par).....1,500,000.00
 State of Alabama Bonds...285,500.00
 Other Stocks and Bonds...833,167.50
 Banking House.....365,500.00

CASH

In Vault.....\$1,110,653.02
 With Banks..2,372,151.22
 With U. S. Treasurer..78,500.00
 With Federal Res. Bank..238,000.00

\$ 3,849,304.24

\$15,845,723.56

LIABILITIES

Capital Stock.....\$ 1,500,000.00
 Surplus and Profits.....1,691,678.86
 Reserved for Taxes.....7,422.00
 Circulation.....1,400,000.00
 Rediscount with Federal Reserve Bank.....132,379.80
 Bills Payable.....300,000.00

DEPOSITS

Individual...\$ 9,243,702.15
 Bank.....1,290,912.63
 United States..279,628.12

\$10,814,242.90

\$15,845,723.56

OFFICERS

J. H. BARR, Chairman

OSCAR WELLS, President

J. H. WOODWARD, Vice-President

J. K. FLEMING, Vice-President

J. E. OZBURN, Secretary Savings Department

J. L. CROSS, Auditor

THOMAS HOPKINS, Cashier

F. S. FOSTER, Assistant Cashier

THOMAS BOWRON, Assistant Cashier

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 With Records of Established Earnings

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 120 Chestnut Street

CHICAGO
 206 S. Market Street

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FROM MUNICIPALITIES OR CONTRACTORS

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(WILMER BLACK, C. P. A.)

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All Work under Personal Supervision of Maryland
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Largest Capital and Surplus of Any Financial Institution in Maryland or Any Southern State

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Resources Sixteen Millions

MERCANTILE TRUST AND DEPOSIT COMPANY

OF BALTIMORE

A. H. S. POST, President

F. G. BOYCE, Jr., Vice-President

be held to vote on \$15,000 school bonds. Address Board of Education.

N. C., Lexington.—Bill has passed the Legislature authorizing Comms. of Davidson county to issue \$300,000 40-year \$1000 road bonds; interest 4%, 4% or 5 per cent. Address County Comms., Lee V. Phillips, Secy.

N. C., Lumberton.—Bids will be received until noon Mch. 30 for \$20,000 5, 5½ or 6 per cent. 30-year floating debt bonds; denomination to suit purchaser. G. T. Page is Treas., Board of Comms.

N. C., Montreat.—Petition is being circulated asking that an election be called to vote on \$5000 school-building bonds. Address Comms. Buncombe County at Asheville.

N. C., Morehead City.—City has sold \$20,000 sewer bonds recently voted. Address The Mayor.

N. C., Newbern.—Bids will be received until noon Mch. 29 for \$20,000 5, 5½ or 6 per cent. Newbern Drainage Dist., Craven county, bonds. Address Geo. D. Dail, Secy. Board of Drainage Comms.

N. C., Newland.—Bids will be received until noon Apr. 6 by P. MacLay Brown, Secy. Board of Road Comms., for \$150,000 5 per cent. 40-year Avery county road bonds; denomination \$1000.

N. C., Pittsboro.—Center township, Chatham county, has voted \$50,000 road bonds. Address County Comms.

N. C., Southern Pines.—Election will probably be held in May to vote on floating indebtedness bonds. Address The Mayor.

N. C., Taylorsville.—\$150,000 Alexander county road bonds are voted. Address County Comms.

Okl., Okmulgee.—\$115,000 5 per cent. 25-year school bonds are voted. Address Board of Education.

Okl., Wilburton.—Election is to be held Apr. 6 to vote on \$100,000 water-works bonds. Address The Mayor.

S. C., Columbia.—Election is to be held Mch. 23 to vote on \$250,000 school bonds. E. S. Dreher is Secy. Board of School Comms.

S. C., Darlington.—Bids will be received until noon March 30 for \$50,000 5 per cent. 30-year school-district bonds; dated April 1, 1915. Address Robert Macfarlan. Further particulars will be found in the advertising columns.

S. C., Greenville.—City Council has voted to issue \$125,000 street-improvement bonds. Address The Mayor.

S. C., Manning.—Clarendon county is offering for sale \$20,000 20-year public-debt bonds, interest not exceeding 5 per cent.; denomination \$100 and \$500. Address Purdy & O'Bryan, County Attys.

S. C., Westminster.—\$16,000 5 per cent. 20-year electric-light \$1000 bonds have been purchased by Robinson, Humphrey Wardlaw Co., Atlanta, Ga.

Tenn., Camden.—\$30,000 5 per cent. 30-year school bonds are voted. Joe F. Odle is Mayor.

Tenn., Carthage.—Election is to be held Apr. 12 to vote on \$15,000 6 per cent. \$1000 school bonds; dated Apr. 1, 1915, and maturing Apr. 1, 1940. A. C. Read is Mayor and F. F. Robinson, Secy.

Tenn., Chattanooga.—\$11,998.12 6 per cent. 14-year paving bonds have been purchased at \$207.50 by the Hanchett Bond Co., Chicago.

Tenn., Chattanooga.—The \$228,000 20-year school, \$125,000 road and \$100,000 Erlanger Hospital 5-30-year 5 per cent. bonds have been purchased by R. M. Grant & Co., New York, at premiums aggregating \$15,971.70.

Tenn., Dayton.—Bids received for \$250,000 5 per cent. 20-year \$1000 Rhea county road bonds offered Mch. 1 were rejected. W. P. Darwin is Chrmn. Board of County Comms.

Tenn., Dickson.—\$5000 water-main extension bonds have been purchased by a Chicago firm. Address The Mayor.

Tenn., Dresden.—City has sold \$15,000 water and \$12,000 electric-light-plant bonds. Address The Mayor.

Tenn., Dresden.—Bids will be received until noon Apr. 8 for 6 per cent. 5-20-year bonds Middle Fork and Spring Creek Drainage and Levee Dist. No. 1, Weakley county; denominations, date and amounts of bonds to be fixed after the sale of the contracts for drainage, levee and ditch work. G. T. Mayo is Chrmn. of Board. Further particulars will be found in the advertising columns.

Tenn., Friendship.—Election will probably be held to vote on school bonds. Address School Board.

Tenn., Germantown.—Bills have been introduced in the Legislature authorizing \$2000 electric-light and \$4000 water bonds. Address Comms. Shelby county at Memphis.

Tenn., Greenville.—Bids will be received until noon Mch. 20 by H. J. Wisecarver, Secy. Pike Com., for \$100,000 5 per cent. Greene county road bonds.

Tenn., Knoxville.—Bill being prepared providing for school bonds will authorize \$50,000 instead of \$25,000, as previously reported. I. C. King is Chrmn. Knox County High School Board.

Tenn., Maryville.—All bids received for the \$100,000 5 per cent. 10-35-year Blount county road bonds offered March 13 were rejected. R. C. M. Reynolds is Chrmn. County Court.

Tenn., Nashville.—Bill is to be introduced in the Legislature asking authority to issue \$625,000 5 per cent. 30-year school bonds. Address Board of Comms.

Tex., Aransas Pass.—\$8000 street and \$5000 water-works 5 per cent. 20-40-year \$1000 bonds, dated Oct. 1, 1914, were purchased by J. L. Arlitt of Austin, Tex. Jesse J. Todd is Mayor.

Tex., Austin.—State Board of Education has purchased the following bonds: Elkhart Independent School Dist., \$6500; Maybank, \$8000; Meridian, \$1000; Mission, \$5000; Shamrock, \$3000; Bell County Road Dist. No. 14, \$6000; Angellina Common School Dist. No. 25, \$5000; Atacosa 34, \$10,000; Bosque 35, \$3000; Brazoria 7, \$6000; Carson 6, \$3000; Grayson 36, \$6000; Grayson 39, \$4000; Hidalgo 12, \$5000; Limestone 13, \$2000; Navarro 36, \$9000; Van Zandt 87, \$7500; Wood 1, \$10,000; Dallas 6, \$1000; Falls 36, \$3600; Calhoun 13, \$2500.

Tex., Austin.—The Attorney-General has approved the following securities: Falls County Common School Dist. No. 36, \$3600 11-year 5 per cents; Navasota schoolhouse repair bonds, \$3050 10-40-year 5 per cent.; Seguin electric-light and water-works improvement \$20,000 5 per cent. 40-year; \$75,000 schoolhouse and \$10,000 street bonds, Denton.

Tex., Bay City.—\$30,000 5 per cent. bonds Road Dist. No. 6, Matagorda county, have been sold; R. R. Lewis, County Judge.

Tex., Belton.—\$15,000 5½ per cent. 40-year bonds Road Dist. No. 4, Bell county, will be sold to the State. W. E. Hall is County Auditor.

Tex., Brenham.—\$15,000 water and \$15,000 sewerage 5 per cent. bonds have been purchased at par and interest by the First National Bank of Brenham.

Tex., Cameron.—\$15,000 6 per cent. 1-15-year Dist. No. 6 road warrants have been purchased by Austin Bros. of Dallas.

Tex., Cameron.—\$100,000 bonds Thorndale Dist. No. 6, Milam county, have been purchased by W. B. Bullock of Kansas City.

Tex., Carrizo Springs.—Election will be held Apr. 3 to vote on bonds Road Dist. No. 1, Dimmit county. Address County Comms.

Tex., Cleburne.—\$180,000 sewer and \$130,000 school 5 per cent. 40-year \$1000 bonds, dated Apr. 1, 1915, and maturing Apr. 1, 1955, were voted Mar. 6. C. W. Breech is Mayor.

Tex., Ferris.—\$16,000 sewerage bonds have been purchased by a Dallas bank. Address The Mayor.

Tex., Fort Worth.—Election is to be held in Tarrant county Apr. 6 to vote on \$350,000 jail and \$200,000 road bonds. Address County Commissioners.

Tex., Haslet.—Election is to be held Apr. 3 to vote on \$10,000 high-school building bonds Haslet Common School Dist., Tarrant county. Address County Comms. at Ft. Worth, Tex.

Tex., Hempstead.—\$15,000 5 per cent. 10-40-year Waller County Road Dist. No. 5 bonds, dated Nov. 12, 1913, have been purchased by J. L. Arlitt, Austin, Tex.

Tex., Houston.—Bids will be received until 2 P. M. March 20 for the following \$1,950,000 5 per cent. bonds, dated March 10, 1915: \$500,000 40-year harbor, \$500,000 40-year drainage, \$500,000 40-year sanitary sewage disposal, \$250,000 40-year park, and \$200,000 25-year school. Ben Campbell is Mayor.

Tex., Jefferson.—Petition has been signed asking that an election be held in Common School Dist. No. 3, Marion county, to vote on \$30,000 school bonds. Address County Comms.

Tex., Lockney.—Lockney School Dist., Floyd county, bonds are voted. Address Board of Trustees.

Tex., Mabank.—Bids will be received at any time by W. H. Broker, Prest. School Board, for \$8000 5 per cent. 10-40-year independent school district bonds.

Tex., Mission.—Election is to be called to

vote on \$25,000 sewer bonds. Address Mayor Ferguson.

Tex., Pecos.—\$100,000 5 per cent. 20-40-year bonds Road Dist. No. 1, Reeves county, have been purchased by W. F. Bullock of Kansas City at par and accrued interest. Address Ben Randals, Judge Reeves County.

Tex., Sherman.—Election is to be held in Grayson county Apr. 17 to vote on \$300,000 5 per cent. road bonds. Address County Comms.

Va., Norfolk.—Ordinance is reported prepared providing for the issuing of \$500,000 bonds for funding certificates of indebtedness falling due Sept., 1915; \$123,000 improvement, \$75,000 water-meters and \$45,000 park-ward. Address The Mayor.

Va., Portsmouth.—\$200,000 water bonds will probably soon be put on the market. Address Board of Water Comms.

Va., Richmond.—The \$334,000 of 4½ per cent. City of Richmond bonds, for which bids were opened Mch. 10, were awarded to the Old Dominion Trust Co. of Richmond and Kean, Taylor & Co. of New York at their bid of 100.77. Other bids received were: Harris, Forbes & Co., New York, 99.344; Estabrook & Co., New York, 100.54; Seasongood & Mayer; Field, Richards & Co., and Provident Savings Bank & Trust Co., Cincinnati, 98.59; Alex. Brown & Sons, Baltimore, 100.143; F. E. Nolting & Co. and American National Bank, Richmond, 98.315; Baker, Watts & Co., Baltimore, 99.09; R. M. Grant, New York, 99.17, and accrued interest in each case.

Va., Skipwith.—Bids will be received until noon Apr. 12 for \$30,000 5 per cent. \$1000 Bluestone Dist., Mecklenburg county, road bonds. Address R. L. Thomason.

W. Va., Grafton.—Bids will be received until noon Apr. 2 for \$110,000 5 per cent. bonds Grafton Independent School Dist. Address Board of Education, W. W. Watkins, Secy.

W. Va., Grantsville.—\$10,000 sewerage bonds are voted. S. T. Waldo is Town Recorder.

W. Va., Keyser.—\$25,000 5 per cent. Keyser School Dist. bonds are voted. Dated July 1, 1915; maturing 1931. Denomination \$500 or multiples thereof. Date for opening bids not decided. Address Chas. N. Fennell, Prest. Board of Education. J. C. Sanders is Supt.

W. Va., Man.—No sale was made March 4 of the \$40,000 5 per cent. 10-34-year Triadelphia Dist., Logan county, school bonds. Address W. R. Hinchman, Secy. Bd. of Education.

W. Va., Wheeling.—\$50,000 5 per cent. 10-34-year \$500 Richland Dist., Ohio county, road bonds have been purchased by Parsons & Co., New York, at par and premium of 1 per cent.

W. Va., White Sulphur Springs.—\$9500 6 per cent. 10-30-year \$500 water and sewer bonds have been purchased at par and \$115 premium by Jno. Nuveen & Co., Chicago, Ill. B. F. Dixon is Recorder.

To Secure Latin-American Trade.

In a letter to the MANUFACTURERS RECORD H. C. Dinkins, general agent at New Orleans and Galveston for Latin-America for the Gould lines, writes:

"The securing of the Latin-American trade as against European competition is no easy matter. Europe has largely furnished the capital for the development of Latin-America, excepting Mexico, where American capital predominates largely in railroads and mines, and it is not reasonable to expect that our manufacturers can send a traveling man to any part of Latin-America without a knowledge of their needs or language, and expect him to sell them what they do not want, but what he thinks they should have. Our European competitors first learn the language, then find out what they want and give it to them.

"The matter of credits has been a matter of a big boggy-boo to our American exporters. The Europeans have their own banks to guarantee acceptances, and the manufacturer takes the acceptance to a bank for, say, 60, 90 or 120 days, and gets his money and the bank collects 6 to 12 per cent. from the customer for the time the acceptance runs. This acceptance in Latin-America is a very serious thing, and

any merchant in those countries who does not protect his acceptance loses his credit and the banks will not discount or accept his paper. This the Europeans understand, and have their banks to protect them. Heretofore we have had no banks to protect our manufacturers, but now the City National Bank of New York has branches in Rio de Janeiro and Buenos Aires to protect business on the east coast of South America, and a banking and trading company is being formed to establish branches on the west coast of South America.

"W. R. Grace & Co. of New York have branches on the South American west coast, and I am informed handle acceptances in United States currency, being the only firm that can or will without going through Europe. Mexico and Central America are provided with American banks.

"Our people should start to cultivate trade with our neighbors to the south in the same way that they do in entering a new territory in the United States; that is by sending a competent representative to study conditions, and not go into it blindly, expecting to reap a golden harvest without knowing the people or their needs. Our Government is doing its share in appointing special trade agents. Our railroads are doing their share in sending their agents to all Latin-America to study conditions, and the information they gain is at the disposal of our exporters."

Installing Efficiency Methods. By C. E. Knoeppel. Publisher, The Engineering Magazine, New York. Price \$3.

This work, in a measure a protest against the misuse and abuse of the word "efficiency," undertakes to present a practical working basis for an application of the principles underlying the philosophy of the industrial and business efficiency which for the past 15 or 20 years has received the attention of executives of many kinds. The author is a practical shopman, as he began his career in a foundry, first as a laborer and then as a molder. He has had abundant opportunity to study industrial efficiencies at close range in a large number of plants, manufacturing widely varying lines. He has reached the conclusion that the philosophy has not been as effective in practice as it should be because of lack of thorough understanding of the proposition, both as regards the work itself and the methods followed by the men identified with the movement. He believes that what the industrial world needs most is a work of such a practical nature as not only to induce managers to investigate it and to try it out in small ways in their own business, but to serve in an indirect way to furnish the measure of the men competent to handle the details. In his volume Mr. Knoeppel does not undertake to antagonize or supplant any exposition or theory, but he tries to supplement all expositions by a clear and circumstantial recital of practice. He urges industrial executives to begin in a small way the introduction of some of the methods described by him, letting their organizations understand that what is being introduced is not an experiment, but part of a determined and consistent attempt to bring about greater efficiency. And he argues that as our industries simply must and will become more efficient before we can get away from the vicious cycle of higher costs and increased prices, industrial managers should cease condemning on general principles and should make a real and consistent attempt to find the method that will prove to be the best kind of industrial nourishment.

Increase Your Southern Business

A CERTAIN WAY

Is to thoroughly read the Construction Department of the **MANUFACTURERS RECORD** every week. Here valuable information of business openings is presented to you in convenient classification by industries and localities for getting in touch with sales opportunities in the South and Southwest.

W. M. Crook of Crook & Lanneau,
Macon, Ga. (Engineers) writes:

"I am sending you the enclosed for a **THREE YEAR SUBSCRIPTION** to the **MANUFACTURERS RECORD**. I consider this the best magazine of its kind that is published. I look forward every week with pleasure to getting it. As long as I am in the engineering work I hope to have it."

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WOULD YOU

be interested in receiving every week the details of the organization and establishment of new concerns to operate in the South and Southwest?

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like to have details of every important new building contemplated, with names of owners, architects and contractors?

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like to have placed before you every week details of established plants that are enlarging?

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care to know what industrial plants and dwellings have been damaged by fire in order to supply your equipment or material for rebuilding?

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manufacture or sell equipment entering into the operation or maintenance of any of these enterprises? If you do, then you should become a subscriber to the Manufacturers Record today.

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Embracing every phase of Southern activity, were published in the Manufacturers Record during 1914. They presented sales opportunities for nearly every one seeking business in the South and Southwest.

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Manufacturers Record

Baltimore, Md.

Classified Opportunities

MEN WANTED

SALESMEN.—We have a liberal commission basis proposition to offer to men who can sell a high-grade line of paints to consumers. State age and present occupation in first letter. Address No. 1713, care Manufacturers Record, Balto., Md.

ARE YOU LOOKING FOR A GOOD MAN? There are a number looking for you. You can get together through an advertisement in these columns. Try it. For rates and other information see block at head of department.

FOREMAN for small woodworking shop who is naturally neat and orderly and understands drying and gluing lumber; state age, experience, references and wages expected. Address No. 1725, care Manufacturers Record, Balto., Md.

AGENTS WANTED among supply dealers and salesmen for an exceptional house-lighting machine, suitable for small homes as well as large; simple, durable, economical; satisfaction guaranteed to customers; has excellent selling points; a live proposition. Write for terms. The Alexander N. Milburn Co., Baltimore, Md.

AGENCIES WANTED

WANTED—Sales agency for all lines pertaining to builders' specialties; East Tennessee as territory; can furnish satisfactory references to interested concern; modern warehouse facilities. Address Daniel Briscoe, Jr., 325-327 State St., Knoxville, Tenn.

SITUATIONS WANTED

EFFICIENCY SOCIETY OF AMERICA, Pittsburgh, Pa. Solicits confidential patronage of interested employers in behalf of our available list of technical-commercial members. Specifications invited.

KAO LIN AND CHINA CLAY MANAGER, 20 years' experience, wishes position; familiar, and competent to develop mine and prepare this commodity at lowest cost; best of references. Address No. 1663, care Manufacturers Record, Balto., Md.

PLANING-MILL estimator and detailer; 20 years' experience in listing work from blueprints, estimating, selling, detailing and billing; A-1 man and strictly sober. Address No. 1715, care Manufacturers Record, Balto., Md.

SPECIALIST in credits and collections would make change; over ten years' experience in the manufacturing and jobbing business; executive experience; age 30; references. No. 1720, care Manufacturers Record.

COMPETENT SUPERINTENDENT wants position with good reliable general contracting concern; 16 years' experience in all lines of building; understands estimating and draughting thoroughly. Address No. 1722, care Manufacturers Record, Balto., Md.

WANTED—Position with electric plant, water-works or ice factory by engineer experienced as superintendent and manager; a successful developer of new business and producer of profits; references furnished. Address No. 1724, care Manufacturers Record.

ACCOUNTANT AND DOUBLE-ENTRY BOOKKEEPER desires position with contractor; experienced in keeping cost accounts, making payrolls, and a capable correspondent; familiar with plans and quantities. No. 1726, care Manufacturers Record.

YOUNG Wide-awake Civil Engineer (26), with experience as engineer for municipality and also contractors, wishes engagement. Location immaterial. Have all instruments. Address No. 1716, care Manufacturers Record.

A NO. 1 FERTILIZER AND OIL-MILL MAN, 9 years' experience factory, throughout office, salesman and general manager, is considering making new connection; good record; highest class references furnished. Address No. 1718, care Manufacturers Record.

AN EXPERIENCED and capable coal man in the prime of life, knows the business from A to Z, wants a position; can handle an office, sell on the road, or manage a coal works; have sold coal and coke from Omaha to Boston and know the markets and transportation; have opened up coal works and disposed of the output; married man of family; temperate habits. Address No. 1688, care Manufacturers Record, Balto., Md.

WANTED—To represent manufacturers in South America; young man, 28, with knowledge of Spanish, will start in about a month; 9 years' selling experience. Address No. 1710, care Manufacturers Record, Balto., Md.

EXPERIENCED superintendent wants position, with architect or contractor, estimator and draftsman for planning mill. Address W. T. Vandegrift, Augusta, Ga.

BUSINESS EXECUTIVE of good address and personality is open for engagement with progressive concern; 30 years of age and married; 10 years in the manufacturing business; specialist in credits, collections, accounting and systematizing; references. Address No. 1707, care Manufacturers Record.

RATES AND CONDITIONS

Rate 20 cents per line per insertion. Minimum space accepted, four lines. Maximum space accepted, 25 lines. In estimating the cost, allow seven words of ordinary length to a line. When the advertisement contains a number of long words, proper allowance should be made. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, whiskey or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year as follows: 100 lines, 18c. per line; 300 lines, 15c. per line; 500 lines or more, 15c. per line.

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RENSSELAER POLYTECHNIC INSTITUTE, TROY, N. Y.—Courses in Civil, Mechanical, Electrical and Chemical Engineering and General Science, leading to the degree of Civil Engineer (C.E.), Mechanical Engineer (M.E.), Electrical Engineer (E.E.), Chemical Engineer (Ch.E.), and Bachelor of Science (B.S.). Also special courses. Splendidly equipped new engineering laboratories. Send for catalogue to Registrar.

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MODELS MADE FOR INVENTORS.—General machine work. Designing and perfecting. Developing automatic devices and machinery. In a position to do all kinds of light tool and machine work. Prices reasonable. Estimates cheerfully given. Ideal Machine Works, 64 Ann Street, New York City.

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NORTHCROSS WOOD MANTELS AND TILE FLOORS for every purpose. Sold direct from factory to your home. All orders receive prompt attention. Every contractor should have a copy of our new catalog showing the largest line in America. Mailed free. W. J. Northcross Mantel Company, 73 Union Ave., Memphis, Tennessee.

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SHREWD manufacturers reduce selling costs by marketing their products through rightly-written sales letters. Free booklet explains my direct selling service. William Cook, 249 Pearl St., New York.

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MULTIGRAPH LETTERS as we produce them are mechanically perfect. Send for samples and prices. The Stryker System, Lincoln, Nebraska.

COLLECTIONS

SEND YOUR TEXAS COLLECTIONS to the Craig Mercantile Agency, Houston and Dallas.

BUSINESS OPPORTUNITIES

\$75 STARTS YOU IN BUSINESS selling adjustable form units for all kinds of concrete work, earning from \$75 to \$150 weekly. Our \$150 outfit has a capacity equal to another one form to each size make, costing \$43.25. Act quick before your territory is gone. Frick Manufacturing Co., Fricks, Pa.

HOTEL TO FINANCE.—We want to correspond with a man or company who can invest \$300,000 in conjunction with home money to build a \$500,000 hotel in this city. Information on request. Nethery & Co., 714 Cong. Ave., Austin, Texas.

FOR SALE—Hardware store, furniture and undertaking establishment, flour mill, farms and timber, factory sites, Md. and Penna. Write W. E. Anderson, White Hall, Md.

WANTED—A manufacturer to manufacture my newly invented "Demountable Automobile Wheel," No. 1128924, on royalty. Address C. A. Watson, Ballinger, Tex.

I WANT a manager with some capital to handle a mattress and bedding factory in Austin, Texas. Will add other departments and can show man of ability and some means a profit of 50 per cent. Will L. Vining, 418 Littlefield Bldg., Austin, Texas.

OPPORTUNITY FOR INTERESTED PARTY.—Patented Shock Binder. A small tool invaluable to Farmers. Highest testimonials from Agricultural Colleges, Experimental Stations and Practical Farmers. Will sell outright; sell on royalty or organize company. Address No. 1717, care Manufacturers Record, Balto., Md.

WANTED—To sell part or whole interest in finely located and paying building material business, in Southern port; wharf, warehouse and railroad connections; reasons for selling personal. Address No. 1721, care Manufacturers Record, Balto., Md.

BANK ORGANIZATION.—Party desires to organize bank in some good town where co-operation can be had; willing to take consistent proportion of stock and fill position of cashier. Address No. 1723, care Manufacturers Record, Balto., Md.

START in the carpet or clothes cleaning business now. Thurman vacuum process unequalled for commercial cleaning. We show you how. Easily learned. Only \$125 capital needed to earn good income in towns of 2000 and over. We manufacture all types of vacuum cleaners from hand-power to 30 H. P. Write today for free booklet and state type desired. Thurman Vacuum Cleaner Co., Dept. E, St. Louis, U. S. A.

WE ARE CONSULTING ENGINEERS backed by a competent staff and a modern machine plant that can save you money if you are interested in designing or building special machinery, special tools, experimental work, models, etc. If you have patented an article which is not perfected, a consultation with our expert mechanician is at your command. We are giving attention to developing patents and marketing patented articles, especially labor-saving appliances. Our list of office appliances is available. We invite correspondence and will give estimates promptly and cheerfully. Specialty Manufacturing-Sales Corp., Norfolk, Va.

WANTED—Competent gentleman to fill position of vice-president and secretary for corporation; salary \$150 per month, but must take \$7500 worth of the stock; first-class corporation. Address No. 1714, care Manufacturers Record, Balto., Md.

FACTORY SITES

FOR SALE—Desirable Manufacturing Site, 180x500 feet. Rail and Water facilities best in State. I will exchange value for preferred stock. W. E. Veasey, Havre de Grace, Md.

BALTIMORE FACTORY AND TERMINAL SITES.—Statement of Asa G. Candier, President The Coca-Cola Co.; "Investigation convinced us that Baltimore is not only the commercial metropolis for Southern trade, but that it affords shipping opportunities both by water and rail for domestic and foreign traffic superior to any of the great cities in any section of the United States." Locate in Baltimore and derive these advantages. We can provide accommodations to meet your requirements. Wm. Martien & Co., 3 N. Calvert St., Baltimore, Md.

INDUSTRIES WANTED

MISCELLANEOUS

THINKING OF MOVING YOUR FACTORY?—West Point, Va., offers big inducements; water and rail transportation; low freight rates; investigate. Chamber of Commerce, West Point, Va.

INDUSTRIAL PLANTS FOR SALE

INTERIOR TRIM PLANT

INTERIOR TRIM PLANT FOR SALE.—For quick sale, the best factory in the South for manufacture of furniture or interior trim. Special advantages in rates, taxes, labor, raw material, both yellow pine and hardwoods. Plant is new, fireproof, and insurance rate is 65 cents per \$100. Sale price is less than half the cost. Write for particulars and photographs. J. P. Mulherin, Trustee, Augusta, Ga.

BOILER, MACHINE AND BLACKSMITH SHOP

BOILER, machine and blacksmith shop in Illinois. Will sell entire plant or part interest to experienced manager. An especially good opportunity for the proper party. Decatur Novelty Works, Decatur, Ill.

FACTORY BUILDING

FOR SALE at Muncie, Ind.—One-story brick factory building, 40x125; steam heat; electric power; Belt R. R.; cost \$6000; price \$3500. Terms. I. N. Bullington, Huntington, W. Va.

CANDY FACTORY

FOR SALE—Candy manufacturing outfit (installed in brick, sprinklered factory, Lynchburg, Va.). Complete equipment valued at \$30,000, in hands of receiver. Can be bought very cheap, either to continue the business or dismantle. For further details apply to Carrington, Stevens & Co., Agents, Lynchburg, Va.

MINERAL AND TIMBER LANDS, WATER POWERS AND MISCELLANEOUS PROPERTIES

WE OWN the material for manufacturing Portland Cement within five miles, by rail, of where more than a half-million dollars worth is wanted. Have also on the same land excellent Marble and Slate containing 29.72 per cent. Aluminum. For sale by Greer & Benscoater, Knoxville, Tenn.

HAVE YOU A VALUABLE PROPERTY FOR SALE? Farm, timber land, mineral property or any other? We can help you get in touch with possible purchasers by an advertisement in these columns. For rates see head of this department.

FOR SALE ON REASONABLE TERMS.

25,000 acres, Escambia county, Alabama, especially adapted for colonizing.
24,000 acres coal and timber lands, located west of Birmingham, Alabama.
14,000 acres, located Southern Alabama, especially desirable for agricultural purposes or colonizing.
10,000 acres, located north Baldwin county, Alabama, especially adapted for a ranch.
5000 acres, especially desirable for citrus fruit growing, including a townsit located just across the bay from Mobile.
5000 acres of hardwood timber, located on the Alabama River not far from Mobile.
500 acres, suitable for factory sites and subdividing, in Mobile.
100,000,000 feet of hardwood timber, located in Central Alabama.
30,000,000 feet long-leaf yellow pine, Southern Alabama.
I own and control all of the above-described properties, and I also act as a broker, so that I am in a position to meet most any requirements in Southern acreage property. Address H. H. Wefel, Jr., Mobile, Ala.

GOLD MINING PROPERTY

80-ACRE GOLD-MINING PROPERTY, TENN.—Property shows 3 veins of gold which assays \$5, \$10.50 and \$24 per ton. This is a real gold mine, the owner of which has not sufficient funds to develop the same and has authorized me to offer it for sale at \$20,000. Full details and copy of assay on request. Arthur M. Connor, Oxford Bldg., Washington, D. C.

WHITE MARBLE QUARRY

FOR SALE—The whitest white marble in the country. The quarry is inexhaustible and is within 50 yards of a railroad. The stone will stand a pressure of 25,000 lbs. to the square inch. Address A. M. Hughes, 339 Park Pl., Washington, D. C.

GRAVEL PIT

FOR SALE—½ interest in one of best pits in Oklahoma or Texas; material good for concrete, ballast or good roads; located on railroad; operating continuously and paying large net income. No. 1719, care Manufacturers Record.

COAL LAND FOR SALE

2500 ACRES good coal land, \$32 per acre, terms. 5000 acres, \$30 per acre. Southeastern Kentucky. No agents. Benton B. Miller, Elizabethtown, Ky.

TIMBER FOR SALE

REAL TIMBER BARGAIN.—50,000,000 ft. 70% N. C. pine, poplar and cypress, all original growth; on Southern R. R. in South Carolina. Liberal terms and low price. J. P. Mulherin (owner), Augusta, Ga.

FOR SALE—Hardwood timber on 500 acres of mountain land immediately on railroad; principally oak, chestnut, hemlock and poplar; pay for as cut and sold. Address North Carolina Talc & Mining Co., Hewitts, N. C.

TIMBER LAND FOR SALE

WE HAVE FOR SALE a controlling interest in a metal-manufacturing business established for 30 years; has always paid good profits. Capital stock of the company is \$300,000; rating is the highest credit in the Commercial Agency. Business in 1914 was about \$500,000. Reason for selling, owner of controlling interest is old and wishes to retire from active business. Business is located in Chicago. Full particulars, including public accountant's statement, furnished on application. C. Frank Taylor, 467 Fort Dearborn Bldg., Chicago, Ill.

FOR SALE—TIMBER LANDS.—From 3,000,000 to 300,000,000 feet. D. D. Carter, 610 Carter Bldg., Hattiesburg, Miss.

Classified Opportunities

FOR SALE—TIMBER LAND.—3500 acres in Washington county, Mississippi; about 3 miles to railroad station; practically a solid block; well drained by good bays; all virgin timber—never been cut over. Timber consists of white oak, red oak, gum, pecan, elm, ash, maple, sycamore, cypress, persimmon and hackberry. A conservative estimate made 7 years ago gives total of 12,500,000 feet; much greater now. Fine sawmill site. All rich alluvial soil. Price \$22.50 per acre. Terms. Address Hazelrigg & Ladd, 30 S. 7th St., Terre Haute, Ind.

FRUIT, FARM AND TRUCK LANDS

THESE COLUMNS ARE CLOSELY READ BY PEOPLE for information of all kinds about Southern properties of every description. If you have a property of any kind that you want to dispose of, try an advertisement in these columns. Others have to their advantage. For rates see head of department.

ALABAMA

GOOD INVESTMENT.—We offer for sale 13,000 acres of best farm, fruit and stock-raising land in solid body, situated only a short distance from Bay Minette in Baldwin county, Alabama.

This land lies well, being level to slightly rolling, with several streams of running water through the tract, making it very desirable for colonization purposes.

This tract can be purchased for the low price of \$7 per acre. Will arrange terms. T. L. Moore & Co., Room 109 Masonic Temple, Mobile, Alabama.

IMPROVED FARM.—460 acres; station and sidetrack on land; colonial home; pecan trees, storehouse, warehouse, fenced, cross-fenced, hog pasture, two dipping vats; four passenger trains daily; 4 miles from junction on main trunk line, with 14 passenger trains daily; in black belt; rich level, lime soil; fine stock farm. Good terms. B. F. Pool, Linden, Ala.

ALABAMA CUT-OVER PINE LANDS.—2000 acres, \$15,500. 12,500 acres and 34,000 acres at \$5.75 per acre; near railroad main line; 50 to 70 bushels corn raised to acre; excellent for stock or subdivision. J. B. Robertson, 56 North Royal, Mobile, Ala.

ARKANSAS

ARKANSAS COLONIZATION TRACT.—2000 acres; 300 acres improved, balance timbered; 2 to 4 miles from station; \$8 per acre. Address Box 158, Bearden, Ark.

FLORIDA

FREE.—William L. Larkin's booklet, "The Truth About Florida," with a six-months' subscription (at one-half regular rates) to The Indian River Farmer. Fruit growers, truckers, general farmers, folks interested in Florida, send 25c to The Indian River Farmer, V-1, Vero, Fla.

THE PALATKA FARMS COMPANY of Palatka, Florida, offers to homeseekers the very superior advantages of splendid soil, adapted to potatoes, corn and trucking, or that for oranges and grapefruit, or for combination of both, with location unsurpassed, lying along the beautiful St. Johns River, 2 miles of Palatka, an up-to-date city of 8000 population. It boasts of electric light and gas plants, four railroads and cheap river transportation. Write for literature. P. J. Beck, Palatka, Fla.

FOR SALE.—Seven-acre farm almost in the city limits of Jacksonville, Fla. If you want a farm that will support you handsomely and steadily enhance in value, this is a bargain for you. Price \$6500. Long terms. J. M. Turner, owner, Box 1093, Jacksonville, Fla.

SOUTH FLORIDA FRUIT AND TRUCKING LANDS.—We are wholesalers of Southern Lands and have choice South Florida lands along the line of the Florida East Coast Railroad which we are offering at attractive prices. These are splendid lands for colonization purposes, being fertile and well located. Write us for particulars. Albert Fendig & Co., Brunswick, Georgia.

HAVE ANY KIND OF LAND to be found in South Florida and am too old to improve. Write me. W. H. Cox, M.D., Brooksville, Fla.

REAL FARM LAND in 40-acre tracts, \$15 to \$25 per acre; good terms. Write E. L. Williams, Perry, Florida, for particulars.

HAVE 23,500 acres of high (no swamps) land in Orange county, Florida, a few miles west of Orlando in the Lake region. This land can be bought right at this time. Write Chandler Campbell, Hamburg, Iowa.

CREAM OF THE FLORIDA EVERGLADES.—Price per acre: Fruitrest, \$20; cropland, \$35 to \$50. Reason: Co-operation vs. private profit. Thomas Elmer Will, Ft. Lauderdale, Fla.

I OFFER FOR SALE for sixty days some of the finest fruit and farm lands in Polk county, situated near the city of Lakeland, the best town in the best county in the State of Florida, in tracts of 5000 to 15,000 acres. For quick sale will sell at much less than actual value. It is on railroad. Geo. C. Barton, Lakeland, Fla.

FOR SALE.—22 acres of pine land and hammock land; 500 orange trees, 300 grapefruit trees; both are seedling and budded; 2000 boxes; 6-room house; 1 good stable; in 3 years 5000 boxes; close to the Caloosahatchee River; 2 miles west of La Belle. Cash, \$14,000, or \$7000 cash down and balance 2 or 3 years with 8 per cent. J. N. Blount, owner, La Belle, Fla.

FOR SALE.—Astor Estate, Lake county, Florida, on St. Johns River, 10-acre tracts, \$40 to \$60 per acre. Terms, \$1 cash per acre and \$1 per acre per month. Literature free. Address J. F. Darnelle, Box 65, Fort Monroe, Va.

FOR SALE.—Timber, turpentine, grazing lands, colonization tracts, and farms in all parts of South; dividend-paying orange, grapefruit and pineapple groves; truck and farm lands, rural water-front and town residential properties, improved and unimproved properties of all kinds, boats and yachts in Florida. Write for our lists. Waters Realty Co., Walton, St. Lucie Co., Fla.

FOR SALE.—Water-front in small tracts on Manatee River, Florida; soil survey shows ideal citrus soil; fine home sites; boating, fishing; close to cities, Tampa Bay and Gulf resorts; flowing wells. Address Manatee River Land Co., Inc., 101 1/2 Franklin St., Tampa, Fla.

LOUISIANA

TRACT of sandy land, about 1000 acres, on Mississippi River, twenty-eight miles from New Orleans; two railroads through property; fully equipped with building, etc. Apply F. Montegut, La Place, La.

MARYLAND

LAKE SHORE FARM.—Over 318 acres, on good macadam road; good buildings; bank barn; right at wharf; \$35 per acre. J. S. Linthicum & Co., 126-9 Law Bldg., Balto., Md.

MISSISSIPPI

FOR SALE—ON EASY TERMS.—Fine plantation, in the heart of the Yazoo Delta, in Bolivar county, the largest cotton producing county in Mississippi, consisting of 3000 acres, and upwards of 2000 acres in high state of cultivation; a large acreage now in oats, trucking, sugar-cane, pastures and other diversification; sufficient mules and horses, corn, hay, implements, seed, etc., for the year 1915; has an up-to-date, improved system gin, electric-light plant, grist mill and blacksmith shop; a large two-story store and residence, a manager's residence and 50 tenant-houses, all practically new, built on brick piers, laid in cement; a new barn costing \$2500, with individual stalls, two silos and a dipping vat, and, in fact, everything necessary for an up-to-date, modern and model plantation. It has always been a money-maker. Main line of the Yazoo & Mississippi Valley Railroad runs in front of property for two miles. A railroad station and ticket office, express and post office on premises. Must sell on account of bad health. Address Louis Waldauer, Greenville, Miss.

FOR SALE.—1400-acre plantation, 1100 in cultivation, 37 mules and horses, implements and corn to operate this year; large residence, barns, tenant-houses; on the beautiful and famous Lake Washington, in the heart of the Delta country, in Washington county, Mississippi; Yazoo & Mississippi Valley Railroad runs through property, and depot within a mile of residence; ideal for grain of all kinds, including alfalfa; also for cattle, stock and cotton. Reason for selling, owner has other interests requiring his attention. Walton Shields, Atty., Greenville, Miss.

TENNESSEE

FOR SALE OR EXCHANGE.—One or more acres, two miles due west city of 70,000, 15 minutes from street car, on pike; ideal environment; building sites and truck gardening. Address Room 1227 Holston Bank Building, Knoxville, Tenn.

TEXAS

DO YOU WANT A HOME NEAR THE COAST? Will give deed for one crop. Very healthy. Get particulars. W. A. Moore, Rock Island, Tex.

VIRGINIA

340 ACRES in Charles City county, fronts on the Chickahominy River, very deep water; the very best fishing and fine duck shooting in spring and fall. The land lies on south side of river; railroad town three-fourths mile north. About 300 acres level, high land, 40 acres swamp; fine trapping. This is an ideal place for a clubhouse, or would make a fine farm if cleared. If interested in something of this kind, write at once, for land at this price is getting very scarce. It is the very best trucking soil, right in the trucking section. There is no cleared land or improvements on this tract, but it is worth a great deal more money than is asked for it. Price \$12.50 per acre. Terms: \$1000 cash; balance to suit purchaser at 6 per cent. interest. E. M. Terry, So. Boston, Va.

VIRGINIA FARMS.—Fine blue grass, grain and dairy farms in the heart of the Piedmont section of Virginia, Culpeper, Fauquier and adjoining counties. Ask for catalogue. The L. M. Allison Co., Real Estate Brokers, Remington, Va. Established 1895.

VIRGINIA ESTATES.—Colonial homes, plantations, farms, suburban homes, Albenmarle pippin orchards, timber lands. Write us for what you want. We have it. R. N. Flanagan & Co., Charlottesville, Va.

WEST VIRGINIA

FOR SALE.—Orchard 121 acres; best location in the East; fine soil; new house and barn; fine water; 2400 trees, all bearing. Will sell a vacant lot in Fairmont, W. Va. For prices and terms write S. W. Umstut, Keyser, W. Va.

FINANCIAL

AN UNUSUAL OPPORTUNITY to secure an interest in a splendidly equipped operation in the Pocahontas field, working the original No. 3 seam, 5 feet thick. The management is in the hands of the wealthiest and most successful operators in the field. Over \$400,000 has been spent on the improvements, and the works have never lost a day for want of orders. The large stockholders and directors represent a tonnage of several millions annually and a wealth of many millions of dollars.

Particulars as to the directors and stockholders will be furnished to bona-fide interested parties.

The unusual conditions prevailing for the past year compels the owner (a non-resident) to sacrifice the stock, which will be sold for \$50 per share, par value \$100, and it cost that. Terms easy; \$10 per share down and \$10 per share per month. Certificates in one-share lots or any number. Brokers protected. Address No. 1684, care Manufacturers Record, Balto., Md.

PATENT ATTORNEYS

PATENT YOUR IDEAS.—\$3000 offered for certain inventions; book, "How to Obtain a Patent" and "What to Invent," sent free upon request; send rough sketch for free report as to patentability. We advertise your patent for sale at our expense. Chandler & Chandlee, patent attorneys, 978 F St., Washington, D. C.

PATENTS THAT PROTECT AND PAY. Advice and books free. Highest references. Best results. Promptness assured. Trade-marks registered. Watson E. Coleman, Patent Lawyer, 624 F St., Washington, D. C.

EUGENE C. BROWN, ENGINEER AND PATENT LAWYER, Suite 40 Victor Building, Washington, D. C. Member Bar U. S. Supreme Court. Patents and Trademarks. Inventions are considered both from Engineering and Legal standpoints in my prosecution of patents. An experience of over 9 years as Examiner in U. S. Patent Office and over 6 years as Patent Expert in important patent suits are my especial qualifications. Reports upon validity and infringement. Send sketch of invention for advice.

"WORDS OF VALUE TO INVENTORS" sent free; should be carefully read before applying for patents. John R. Woodworth, Registered Atty., Ward Bldg., Wash., D. C.

MONEY IN PATENTS.—I secure your patent or return my fee. Manufacturers want Mills patents. Write for free booklet, "How to Get Your Patent and Make Your Profits Thereon." I assist in selling your patent. Mansell F. Mills, Registered U. S. Patent Atty., 252 Com. Nat. Bank Bldg., Washington, D. C.

VALUABLE INVENTIONS justify only best legal service. Consult Vernon E. Hodges, Attorney-at-Law, Barrister Bldg., Washington, D. C. Practice before the U. S. Supreme Court; all Circuit Courts; Courts of the District of Columbia, and the U. S. and Foreign Patent Offices exclusively. Continuous practice since 1886. Extensive experience with all classes of invention, representing lawyers, manufacturers and inventors in every State.

C. L. PARKER, Patent Lawyer, formerly member Examining Corps, U. S. Patent Office, 924 G St., Washington, D. C. Patents secured. Patent suits conducted. Reports on the patentability of inventions, the scope and validity of patents, and whether any process or machine infringes existing patents. Reference to prominent manufacturers and pamphlet of instructions furnished upon request.

PATENTS.—Herbert Jenner, patent atty. and mechanical expert, 606 F St., Washington, D. C. I report free of charge if a patent can be had and its exact cost. Send for circular.

PATENTS secured or Fee returned. Send sketch for free report as to patentability. Guide book and what to invent, with valuable list of inventions wanted, sent free; \$1,000,000 offered for inventions. Patents secured by us advertised free in World's Progress; sample free. Victor J. Evans & Co., 12 Ninth St., Washington, D. C.



Why Put a New Fuse Into the Circuit Every Time You Have a Blowout?

Cut annual fuse maintenance 80% and secure positive electrical protection under all conditions.

ECONOMY RENEWABLE CARTRIDGE FUSES

When an Economy fuse blows, you don't throw it away—you simply insert a new renewal element and have virtually a new fuse. 25 blowouts of an ordinary non-refillable fuse (100 Amps, 250 Volts) cost \$10.12 1/2, while 25 blowouts of an ECONOMY renewable cartridge FUSE of the same capacity cost \$2.10—and remember Economy fuses give absolute protection—they do not vent fire nor hold a sustained arc. They are the only renewable fuses uniformly rated. Economy fuses meet the performance specifications governing the use of such devices.



Why spend four times more than necessary in fuse maintenance? Write today for Bulletin M. R.—and list of prominent satisfied users.

Two renewal elements furnished free with each Economy fuse. Figure the saving yourself.

Economy Fuse & Mfg. Co. Kinzie and Orleans Sts CHICAGO

PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS

GOVERNMENT PROPOSALS

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C. March 12, 1915. Sealed proposals will be opened in this office at 3 P. M. April 23, 1915, for the extension, remodeling, etc., of the United States Postoffice, Courthouse and Custom-house at Toledo, Ohio. Drawings and specifications may be obtained from the custodian at Toledo, Ohio, or at this office, in the discretion of the Supervising Architect. O. WENDEROTH, Supervising Architect.

TREASURY DEPARTMENT, Bureau of Engraving and Printing, Washington, D. C. March 15, 1915. Sealed proposals will be received at this office for furnishing oils, etc., during the fiscal year beginning July 1, 1915, until 2 P. M. Monday, May 3, 1915. Awards will be made only to established manufacturers or dealers in the articles. The right is reserved to reject any or all bids or parts of bids. Blank forms with specifications for proposals and further information will be furnished intending bidders on application to JOSEPH E. RALPH, Director of Bureau.

GOVERNORS ISLAND, N. Y. H. March 15, 1915. Sealed proposals, in triplicate, for furnishing Forage and Straw (three months' and a year's supply) and Fuel, Gasoline, Mineral Oil, Beef and Mutton, required in Eastern Department during year commencing July 1, 1915, will be received here until 11 A. M. April 14, 1915. Information furnished on application to Department Quartermaster.

BOND OFFERINGS

Notice of Bond Sale

Dallas, N. C.
Sealed bids will be received by the town of Dallas, N. C., until 6 P. M. Tuesday, April 6, 1915, for \$10,000 6 per cent. 30-year funding bonds.
Certified check of a national bank for 5 per cent. of bid to be enclosed. The right to reject any or all bids is reserved. No other indebtedness of the town. Assessed valuation of property is \$360,000. For further information address
DR. S. A. WILKINS,
City Treasurer.

March 3, 1915.

\$60,000 Road Bonds for Sale

Trenton, Ga.
Notice is hereby given that the Board of Commissioners of Roads and Revenue of Dade County, Georgia, will receive sealed bids up to noon of April 6, 1915, for the sale of sixty thousand (\$60,000) dollars County Road Bonds, each bond to be of \$1000 denomination.

Said bonds to run for twenty years from September 1, 1914, bearing interest at the rate of five per cent., payable annually on January 1, but said bonds are to bear interest only from date of sale.
All bids must be accompanied by a certified check for one thousand dollars, made payable to I. H. Wheeler, Chairman, conditioned upon the faithful performance of all obligations upon the part of the successful bidder.

The Board of County Roads and Revenues reserves the right to reject any and all bids. Any further information will be furnished by the Secretary.

I. H. WHEELER,
Chairman;
G. W. CROSS,
W. C. CURETON,
Board of Commissioners.
By C. S. TURNER,
Secretary.

Notice of Sale of Bonds

Raleigh, N. C.
On Monday, the 22d day of March, 1915, at noon, in the office of the Mayor, the City of Raleigh will receive sealed bids for fifty-seven thousand dollars (\$57,000) of thirty-year five per cent. coupon bonds in denominations of five hundred dollars each, dated January 1, 1915. Bonds issued by authority of Act of the General Assembly of North Carolina, session 1915, and are for the purpose of funding floating debt and making certain permanent improvements.

Certified check for \$1000, payable to James I. Johnson, Mayor, will be required. Purchaser will be required to furnish blank bonds ready for execution.
Principal and interest will be made payable at any bank the purchaser may specify. Sinking fund is provided for.
Population of Raleigh, Census of 1910, 19,218. Estimated population now, 25,000.

Financial Statement.
Assessed valuation of property May, 1914.....\$12,203,504.00
Actual value (estimated).....15,000,000.00
Tax rate on \$100.....1.25
Bonded debt, including this issue.....\$1,374,500.00
Water-works bonds included.....\$475,000.00
Sinking fund (cash and securities).....80,000.00
Property owner's notes.....100,000.00
655,000.00
Net debt.....\$719,500.00
No floating debt.

W. H. SAWYER,
City Clerk.

March 5, 1915.

PROPOSAL ADVERTISING INFORMATION

RATE: 20 cents per line per insertion.

PUBLICATION DAY: Thursday.

FORMS CLOSE 9 A. M. Wednesday. Copy received later cannot be published until issue of following week.

NIGHT LETTER: When too late to send copy by mail to reach us by 9 A. M. Wednesday, forward by night letter.

THE DAILY BULLETIN OF THE MANUFACTURERS RECORD:

Published every business day; gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened, or when daily publications are necessary to meet legal requirements.

The same rate applies—20 cents per line per insertion.

BOND OFFERINGS

Proposed Issue of Bonds by the School District of the Town of Darlington, S. C.

Amount of Issue, \$50,000. Denomination to Suit Purchaser.
Date of Bond, April 1, 1915. Interest Rate, 5%, Payable Semi-annually.
Maturing Thirty Years from Date. Principal and Interest Payable in New York City.
Bonds will be issued pursuant to a Special Act of the General Assembly of South Carolina, 1914, at Page 918.
Authorized by election in School District held January 26, 1915, after due notice published in News and Press of Darlington, S. C.
Number of votes for bonds, 36. Number of votes against bonds, 3.
Assessed valuation of property, 1914, \$1,816,253.
Estimated true value of property, \$7,000,000.
Total bonded debt of School District, including this issue, \$75,000.

There is no other indebtedness on the District as such, but on the Town of Darlington, which is embraced within the District, there is a bonded debt of \$112,000; on the County of Darlington, which embraces both the School District and the Town of Darlington, there is \$50,000 bonded indebtedness; but on none of these is there any other than these bonded debts.

The tax rate in the School District of the Town of Darlington is 20 mills on the dollar, or \$20 on the \$1000. The City tax is also 20 mills.
There is no sinking fund.
Population at present estimated to be 6500.

The bonded indebtedness of the School District other than the proposed issue consists of \$5000 issued June 1, 1889, due 30 years from date, bearing 6% interest, payable annually, and \$20,000 issued May 1, 1902, due 30 years from date, bearing 5% interest, payable semi-annually.

The proceeds of the proposed sale of bonds are to be expended in building, improving and equipping new and old school buildings.

No question has been raised as to the legality of these bonds.

Bonds will be sold at Darlington, S. C., at private sale on sealed bids, on the 30th day of March, 1915, at 12 o'clock M. The right to reject any and all bids, however, is reserved. Certified check for \$1000 must accompany bids, payable to George E. Dargan, Treasurer. Correspond with

ROBERT MACFARLAN,
Darlington, S. C.

Notice of Bond Sale

Sealed proposals for the purchase of seventy-five thousand dollars of Grant District, Wetzel County, West Virginia, 6 per cent. thirty-year Road Bonds will be received by the undersigned, to be opened at the Court-house in New Martinsville, West Virginia, on the 27th day of March, 1915, at 1:30 o'clock P. M.

Bonds are redeemable at par on and after December 1, 1923, at the option of the County Court of Wetzel Co., West Virginia.

Interest payable semi-annually on the first days of December and June.
Each bidder must deposit a certified check for 5 per cent. of amount bid, payable to C. M. Stone, Sheriff of Wetzel County, West Virginia, as a guaranty that they will take up and pay for the bonds as soon as same are signed and ready for delivery.

No bids for less than par and accrued interest will be considered, and the right is reserved to reject any and all bids.

Bids may be delivered in person on day of sale or forwarded by mail so as to reach the undersigned not later than March 25, 1915.

Address all communications to
L. E. LANTZ, Secretary,
Care The Bank of Jacksonville,
Jacksonburg, West Virginia.

Notice of Bond Sale

\$79,000 5% "VALIDATED REDEMPTION AND IMPROVEMENT BONDS OF THE CITY OF LAKE CITY" (FLORIDA).

Sealed bids at not less than par value will be received by Board of Public Works of the City of Lake City, Florida, until April 12, 1915, at 8 P. M., when they shall be opened, for the purchase of any or all of \$79,000 5 per cent. 30-year bonds, dated October 1, 1913, interest payable semi-annually on the 1st day of April and October of each year. Interest coupons now due will be detached before delivery. Said bonds issued under authority of ordinance under Chapter 5509 of Laws of Florida of 1905, for public improvements and to take up outstanding indebtedness; said bonds being in denominations of \$1000 each. Each bid must be accompanied by a certified check of \$500. Said bonds known as "Validated Redemption and Improvement Bonds of the City of Lake City," and were validated by a decree of the Circuit Court of Florida of the Third Judicial Circuit on the 6th day of January, 1914, under Chapter 6237, Laws of Florida of 1911.

Further information may be had from W. H. Wilson, City Attorney.

The right reserved to reject any and all bids.

G. A. BUIE, Chairman.

J. W. LAYNE, Secy.

\$10,000 5% School Bonds For Sale

Plaquemine, La.
The School Board of Iberville Parish, La., will receive sealed bids for \$10,000 school bonds until 1:30 P. M. April 7, 1915. Bonds bear five per cent. per annum, payable annually, and may be arranged in denominations to suit purchaser. Those bidding are asked to submit bids which include their furnishing the blank bonds. Communications should be sent to the Secretary School Board, Plaquemine, La. The Board reserves the right to reject any or all bids.

L. E. MESSICK,
Secretary School Board.

Bond Sale Notice

Copiah County, Mississippi, Supervisors' District Number Five, 6 per cent. Road Bonds. \$25,000 of a \$150,000 issue to be sold on May 1, 1915. Submit all bids and communications to B. Shelton, Clerk of Road Commissioners of District No. Five, Hazlehurst, Miss.

Town Bonds

Elm City, N. C., has \$7000 20-year 6 per cent. coupon bonds for sale. The undersigned will receive sealed bids for same until 2 o'clock P. M. April 7, 1915, and will gladly furnish full particulars about this issue.

CLARENCE WINSTEAD, Clerk,
Elm City, N. C.

For Sale—\$25,000 City of Union (S. C.) Water-Works Improvement Bonds

Sealed bids will be received and opened by the City Council of Union, S. C., up till noon March 31, 1915, for the purchase of twenty-five thousand dollars of City of Union, S. C., "Water-works Improvement Bonds." Interest coupons payable semi-annually at a rate not exceeding 6 per cent. In denominations to suit the purchaser. Life of bonds forty years, with the privilege of redemption in twenty years, 20-40s.

All bids must be accompanied by a certified check of five hundred dollars—2 per cent. The right is reserved to accept or reject any or all bids.

By order of the City Council.
W. D. ARTHUR,
Clerk and Treasurer.
Union, S. C., March 4, 1915.

\$100,000 5% Road Bonds

Sealed bids will be received by the Board of Highway Commissioners of Swain Road District, Swain county, N. C., until 1 P. M. April 10, 1915, for the sale of \$100,000 road bonds of Swain Road District, bearing 5 per cent. interest, payable semi-annually, and to mature as follows: \$5000 April 1, 1926, and \$5000 each year thereafter until and including April 1, 1945. Interest and principal to be paid at the Bryson City Bank, Bryson City, N. C. All bids to be accompanied by a certified check for \$1000 on some responsible bank. Right reserved to reject any and all bids. Mail all bids to the undersigned marked "Sealed Bid."

FRANK E. FRY, Secretary,
Bryson City, N. C.

\$25,000 4 1/2% Bonds

Bids will be received until 12 M. Saturday, April 3, 1915, for \$25,000 4 1/2 per cent. twenty-year Union County Bonds. Interest payable semi-annually. Certified check for \$500 to accompany bid.

Board County Commissioners reserve right to reject any and all bids.

J. T. JETER, County Supervisor,
Union, South Carolina.

\$12,000 6% School Bonds

Until 12 o'clock noon the first day of April, 1915, sealed bids will be received by the trustees of Mullins High School District for the purchase of twelve thousand dollars twenty-year six per cent. High School Bonds, interest payable annually. A certified check for \$500 is required to accompany each bid. The board reserves the right to reject any and all bids.

F. CHALMERS ROGERS,
Clerk of Board of Trustees,
Mullins, S. C., March 4, 1915.

Drainage, Levee and Ditch Work and Bond Sale

NOTICE TO CONTRACTORS AND BOND BUYERS.

Dresden, Tennessee, March 3, 1915.
In matter of Middle Fork and Spring Creek Drainage and Levee District No. 1, Weakley County, Tennessee.

Sealed bids will be received until noon of Thursday, April 8, 1915, at the Courthouse in Dresden, Tennessee, according to the plans and specifications of the engineer, by the Board of Directors of the Middle Fork and Spring Creek Drainage and Levee District No. 1 of Weakley County, Tennessee, for the work for the following improvements of said District, to wit:

Contract No. 1, approximately 364,700 cubic yards of embankment in north levee, with floating dredge, construction work to begin within five months of the sale of bonds in said sale and to be completed within fourteen months of the sale of the said bonds.
Contract No. 2, for approximately 645,550 cubic yards of excavation in Spring Creek ditch, 270,615 cubic yards of embankment in south levee and 41,300 cubic yards of embankment in back water levee No. 2, all with floating dredge. Construction work must begin within five months of the sale of the bonds and be completed within twenty-four months of the sale of bonds.

Contract No. 3, the clearing of approximately 500 acres of floodway between levees, clearing work to begin within five months of the sale of bonds and to be completed within twelve months of the sale of the bonds.

The contractor for the construction of the levee work will be required to clear the space covered by the levee and embraced in the ditch made parallel with the levee, and grub a space along the center of the levee base fifteen feet wide according to the specifications of the engineer, and will be required in constructing said levee to make a continuous ditch along the land side of the levee in accordance with the specifications of the engineer. The contractor for the ditch work will be required to clear the space to be used for the ditch.

All bidders will be required to deposit in cash or by certified check the equivalent of 10 per cent. of their bids, provided said deposit is in no event required to exceed \$10,000, for purpose as required by law.

The right is reserved to reject any and all bids as provided by law.

We will also at said time and place and up to said time receive and consider bids for bonds to be sold for the purpose of paying for the construction of said work, expenses of administration and other costs incident to said improvements, the bonds to bear 6 per cent. interest, payable annually, and to be divided into series of 5's and 20's. The denominations, date and amounts of the bonds to be fixed after the sale of the contracts. The bidders for the construction of the work will also be permitted to bid on the bonds. The right is also reserved to reject any and all bids for the bonds; the bond issue to be approved by Wood & Oakley, Chicago, Ill.

Request for full information should be addressed to G. T. Mayo, Chairman, Dresden, Tenn.; W. E. Tansil, Secretary of the Board, Sharon, Tenn.; R. T. Lewis, Attorney, Dresden, Tenn.; or Morgan Engineering Company, Memphis, Tenn.

G. T. MAYO,
Chairman;
W. E. TANSIL,
Secretary;
J. B. OVERTON,
Board of Directors, Middle Fork and Spring Creek Drainage and Levee District No. 1 of Weakley County, Tennessee.

PAVING AND GOOD ROADS

Street Paving

NOTICE TO CONTRACTORS.

Sealed bids will be received by the Council of the Town of Pulaski, Virginia, on Saturday, March 20, 1915, at 2 o'clock P. M., for building approximately seven miles of macadam and concrete streets in accordance with plans and specifications on file in the City Engineer's Office.

Plans and specifications may be obtained on the deposit of ten dollars with the town.

E. W. CALFEE, Mayor.

M. S. HUDGINS, City Engineer.

Highway Construction

NOTICE TO CONTRACTORS.

Marshall, Texas. The Commissioners' Court of Harrison County, Texas, will receive up to 2 o'clock P. M. on April 6, 1915, in the city of Marshall, Texas, sealed bids for the construction of approximately twenty miles of graded and macadam highway in Road District No. 1 of Harrison County. Plans may be examined in office of N. P. Turner, highway engineer, Marshall, Texas, and specifications may be procured after March 15 by applying to the engineer. The right is reserved to reject any or all bids.

Hard-Surfaced Highways

LEGAL NOTICE.

Brooksville, Fla. The Board of County Commissioners of Hernando County, Florida, will on the 6th of March, 1915, at twelve o'clock noon, at Brooksville, Florida, at the Clerk's office in the Courthouse, receive sealed bids for the construction of hard-surfaced highways in Hernando County, Florida, according to plans and specifications of said highways now on file in the Clerk's office at Brooksville, Florida, and in the office of Jaudon Engineering Co. of Savannah, Ga. Contractors to furnish all materials and labor. The Board reserves the right to reject any or all bids.

H. D. EVANS, Chairman.

Attest: M. H. SNOW, Clerk.

Notice to Paving Contractors

Charleston, W. Va. Sealed proposals will be received by the Board of Affairs of Charleston, West Virginia, until 10 o'clock A. M. Wednesday, March 24, 1915, for curbing and paving fifteen (15) streets in the city of Charleston, West Virginia, containing approximately 40,700 ft. curb and 71,640 sq. yds. paving.

All well-known classes of paving material will be considered. Payments will be made in cash on monthly estimates.

A certified check, payable to the order of Treasurer of The City of Charleston, amounting to two and one-half (2½) per cent. of bid, guaranteeing that successful bidder will enter into contract and furnish satisfactory bond to the amount of fifty (50) per cent. of the bid, must accompany each proposal.

The Board of Affairs reserves the right to reject any and all bids.

For plans and specifications or further information apply to G. S. Brown, City Engineer, Loewenstein Building, Charleston, West Virginia.

O. A. PETTY, President.

Road Construction, Lake County, Florida

Tavares, Fla. Sealed proposals will be received by the Board of County Commissioners of Lake County, Florida, at the office of the County Clerk in the Court House at Tavares, Florida, for the construction of a System of Roadways in Lake County, until Thursday, April 15, at 12 noon, 1915, at which time they will be opened and read publicly. The work includes the furnishing of all labor, material and machinery, and equipment of every kind necessary to construct the roadways according to plans and specifications. The approximate quantities are as follows:

1,091,046 lin. ft. roadway.
329,630 cu. yds. excavation.
1,147,610 sq. yds. pavement.
301.62 cu. yds. concrete.
5,554 lbs. square deformed steel.
5,146 lbs. R. C. steel.
65 feet 24" drains.
125 feet 18" drains.
435 feet 15" drains.
260 feet 12" drains.
1,552 feet pole line to be moved.
57 bridges to be raised.

Bids are asked on the following surfacing for roads: Sand-clay, shell, modified asphalt, plain macadam, water-bound, macadam with "Roc-Mac" binder, macadam oiled. The type of surfacing to be used for different roads will be determined after bids are in.

Each bid must be accompanied by a certified check on a National Bank for 5 per cent. of the amount bid or an approved bid bond issued by a Surety Company authorized to do business in Florida, drawn to the order of the County Clerk, H. H. Duncan.

Plans and specifications may be seen at the office of the County Clerk or the Engineers. Specifications may be obtained from the County Clerk or the Engineers. Copies of plans may be obtained from the Engineers at \$25 per set to cover their actual cost.

The desire of the Board is to let the contract in as large sections as possible. The right is reserved to reject any or all bids.

J. H. COMPTON, Chairman.

H. H. DUNCAN, Clerk.

THE J. B. McCRARY CO., Engineers,
1408-17 Third National Bank Building,
Atlanta, Ga.

To Paving Contractors

Sealed proposals on blank forms furnished by the city, and addressed to the Mayor of Greenville, S. C., will be received until 4 P. M. March 30, 1915, for furnishing all material, labor, etc., for street and sidewalk paving.

The work will consist of approximately 20,000 sq. yds. of street paving, and approximately 5,000 sq. yds. of sidewalk paving. Also the necessary granite curb, cement curb and gutter, and brick gutters necessary to make a complete job.

Each bid must be accompanied by a certified check made payable to the City Clerk and Treasurer for five hundred (\$500) and 0/100 dollars.

The right is reserved by the city to reject any or all or any portion of bids.

Specifications can be seen and additional information gotten at the office of the City Engineer, Greenville, S. C.

C. P. BALLENGER, City Engineer.

JNO. B. MARSHALL, Mayor.

Notice to Bidders for Street Paving

Cumberland, Md. Sealed proposals, addressed to the Mayor and City Council of Cumberland, Md., will be received at the Office of the City Clerk, City Hall, endorsed "Proposals for Grading, Curbing, Paving and Otherwise Improving Streets Under Cumberland City Paving Bonds," on or before 9.30 A. M. Monday, April 5, 1915.

There are sixteen (16) streets to be paved with Brick on Concrete Base; approximately there will be 57,000 square yards, requiring about two and a half million bricks.

Bids may be made for the whole number of streets or for each street separately, to suit bidders.

Plans and specifications can be procured at the Office of the City Engineer, for which \$1 per street will be charged, to be refunded on return of plans in good order. A certified check for \$50 must accompany bid on each street, to be returned after award of successful bidder is announced.

Bids must be in the hands of the City Clerk at the City Hall, Cumberland, Maryland, not later than 9.30 A. M. April 5; at such time and place said bids will be opened.

The Mayor and City Council of Cumberland reserve the right to reject any and all bids.

JAMES P. GAFFNEY, City Engineer.

WATERWORKS AND SEWERS

Winnsboro, S. C.--Construction Material

Sealed proposals will be received by the J. B. McCrary Company, Engineers, at the office of T. A. Moore, Clerk of Joint Commissioners, Winnsboro, S. C., for furnishing all material and machinery for a water-works and sewerage system and improvements to light plant, until 11 A. M. March 23, 1915, at which time they will be opened and read publicly.

The approximate quantities are as follows:

172x16 boiler.
1180 H. P. four-valve engine.
125 K. V. A. generator.
1 three-panel switchboard.
2750 G. P. M. Underwriters' steam fire pumps.
1250 G. P. M. centrifugal pump and 25 H. P. motor.
2300 G. P. M. centrifugal pumps and 25 H. P. motors.
515 K. W. transformers.
175,000-gallon tank on 75' tower.
1250 H. P. open-type feed-water heater.
16x16 feed pump.
341,000 brick.
6 bags fire clay.
124 barrels lime.
652 barrels cement.
236 tons stone.
29,566 pounds original pig lead.
1,783 pounds jute.
5,346 pounds reinforcing steel.
16,308' 8" cast-iron pipe.
14,164' 6" cast-iron pipe.
17,900' 1½" galvanized-iron pipe.
38 6" double-nozzle hydrants.
9 8" H. E. gate valves and boxes.
16 6" H. E. gate valves and boxes.
31 1½" screwed gate valves and boxes.
9 tons cast-iron specials.
1,400' 12" T. C. sewer pipe.
3,700' 10" T. C. sewer pipe.
31,800' 8" T. C. sewer pipe.
150' 6" T. C. sewer pipe.
855 8"x6" T. C. Y branches.
850 6" Y caps.
79 manhole rings, covers (perforated), dust pans and rods.
15 flush tank rings and covers (solid).
8 lamp-hole castings.
3 single flush tank siphons.
12 hand flush tank valves.

Each bid must be accompanied by a certified check for 5 per cent. of amount bid, drawn to the order of the J. B. McCrary Company, Engineers.

Each bid must be addressed to the J. B. McCrary Company, Engineers, care T. A. Moore, "Clerk," Winnsboro, S. C.

Specifications may be obtained from the Engineers by writing their Atlanta office.

The right is reserved to reject any or all bids.

THE J. B. McCRARY CO., Engineers,
1408-17 Third National Bank Bldg.,
Atlanta, Ga.

Water-Works Supplies

Office of Superintendent City Water-Works, Room 112, City Hall, Richmond, Va., March 12, 1915.

Sealed proposals will be received at this office until 12 M. March 26, 1915, for the following supplies and contract work:

Gate valves, cast-iron pipe, special castings, three-nozzle fire hydrants, valve boxes,

meters, meter boxes, pig lead, wiping solder, brass work, lead pipe and hauling.

Specifications, plans and information can be obtained in this office, and bids must be made on form of proposal furnished by this office.

The Administrative Board reserves the right to increase or decrease the specified quantities twenty per cent. and the right to reject any or all proposals. A certified check for \$100, payable to the City Treasurer, must accompany each bid. Bond will be required on each contract awarded.

E. E. DAVIS, Superintendent.

Union (S. C.) Water-Works Construction Material

Sealed proposals will be received by the Commissioners of Public Works at their office, 17 West Main street, Union, S. C., for furnishing material and machinery for water-works extension until 11 A. M. March 30, 1915, at which time they shall be opened and read publicly.

The approximate quantities are as follows:

21,120' 8" cast iron pipe.
1,600' 6" cast iron pipe.
2,000' 4" cast iron pipe.
24,000 pounds original pig lead.
1,000 pounds jute.
12,000 pounds cast iron specials.
4 8" H. E. gate valves and boxes.
8 4" double-nozzle hydrants.
1 400 G. P. M. centrifugal pump.
160 35' 8" top cypress poles.
160 24" Bo-Arrow arms, with pins and bolts.
500 6800-volt porcelain insulators.
6 20 K. W. 6600-2200-volt transformers.
1 75 H. P. induction motor.
3,500 pounds No. 5 copper wire.

Each bid must be accompanied by a certified check for five per cent. (5%) of amount bid, drawn to the order of W. H. Sartor, Chairman, which will be forfeited upon failure by bidder to enter into contract and furnish the necessary bond. Each bid must be addressed to R. A. Easterling, Engineer, care Commissioners of Public Works, Union, S. C.

Specifications may be obtained from the Engineer at Union, S. C., upon payment of five dollars to insure their return within ten days after letting.

R. A. EASTERLING, Engineer.

W. H. SARTOR, Chairman.

WELLS

Deep Well

Burlington, N. C. The city of Burlington is contemplating boring a deep well. The Commissioners will be glad to hear from parties doing business of this kind. Address A. R. Faucette, Secy. Water, Light & Power Comm.

10-Inch Deep Well

Caruthersville, Missouri. Sealed bids addressed to the City Clerk, endorsed "Proposal for Well," will be received until 2 P. M. March 22, 1915, at which time they will be publicly opened and read. Certified check \$400 to the order of the City Clerk. The Board reserves the right to reject any or all bids or accept any bid. Specifications may be obtained at the office of the City Clerk or from the Engineer.

J. M. MCGINNIS, City Clerk.

FRANK L. WILCOX, Consulting Engineer, Syndicate Trust Building, St. Louis, Mo.

MISCELLANEOUS

Electric Lights Wanted

Guntersville, Ala. The town of Guntersville, Ala., contemplates putting in a system of electric lights within the next few months, and the Town Council of said town is now open for propositions from anyone who will put in the lights.

D. ISBELL, Mayor.

Corrugated Iron Culverts

Bids will be received by the Board of County Commissioners of Pinellas County, Florida, at Clearwater, Fla., April 6, 1915, for following sizes of corrugated iron culverts:

40 ft. 72-in., 10 gauge.
36 ft. 48-in., 12 gauge.
72 ft. 36-in., 14 gauge.
300 ft. 24-in., 15 gauge.
300 ft. 18-in., 16 gauge.
300 ft. 12-in., 16 gauge.
300 ft. 12-in., 16 gauge.
108 ft. 15-in. ½-round, 16 gauge.

All bidders will be required to show samples of two-ft. lengths or over. The Board reserves the right to reject any or all bids.

CLEMENTS McMULLEN, County Highway Engineer.

Iron Stairs and Enclosures

NOTICE TO CONTRACTORS.

Sealed proposals for Iron Stairs and Enclosures for the Southwest Wing, State Hospital for Insane Criminals, Dannemora, N. Y., will be received by Dr. Charles H. North, Medical Superintendent, Dannemora State Hospital, Dannemora, N. Y., until April 1, 1915, when they will be publicly opened and read. Proposals shall be accompanied by a certified check in the sum of Thirty Dollars (\$30). The contractor to whom the award is made will be required to furnish surety company bond in the sum of 50 per cent. of the amount of contract within thirty days after official notice of award of contract and in accordance with the terms of specification No. 2219. The right is reserved to reject any or all bids. Drawings and specifications and blank forms of proposal may be obtained from Dr. Charles H. North, Superintendent, Dannemora State Hospital, Dannemora, N. Y. Dated Dannemora, N. Y., March 8, 1915.

Aluminum Sulphate

Office of Superintendent City Water-Works, Room 112, City Hall, Richmond, Va., March 12, 1915.

Sealed proposals will be received at this office until 12 M. March 26, 1915, for furnishing eight hundred (800) tons aluminum sulphate, high basicity, for water clarification, containing from seventeen to twenty-two per cent. aluminum oxide, delivered f. o. b. Korah Station, Chesapeake & Ohio Railway, in barrels, at such time and in such quantity as the superintendent may require.

Further information can be obtained from this office.

The Administrative Board reserves the right to reject any or all proposals, or any part of any or all proposals, also to increase or decrease the specified quantities twenty per cent.

A certified check for two hundred dollars, payable to the City Treasurer, must accompany each bid.

Proposals must be submitted in sealed envelopes, containing the name and address of the bidder, directed to the Administrative Board, and in the lower left-hand corner must be written "Proposals for Aluminum Sulphate."

Bond will be required on contract. E. E. DAVIS, Superintendent.

To Bridge Contractors

Lake Charles, La. Sealed bids will be received by the Police Jury, Calcasieu Parish, at the office of the Highway Department, Courthouse, Lake Charles, La., up to 10 o'clock A. M. April 6, 1915, for the construction of a steel highway swing bridge over Black Bayou on Highway No. 4.

Bids will be accepted on the following alternatives:

(1) The fabrication and delivery f. o. b. Lake Charles of steel work and turning machinery.

(2) The erection of the steel work and machinery and the construction of the substructure.

(3) The supply and erection of both superstructure and substructure, complete.

Plans and specifications are on file at the office of the Highway Department, and copies of same may be obtained upon payment of five dollars (\$5), which will be refunded upon receipt of a bona-fide bid and the return of the plans and specifications.

Each bid must be accompanied by a certified check drawn on a bank doing business in Lake Charles, and made payable to the Treasurer, Calcasieu Parish, for 5 per cent. of the amount of the bid.

The Police Jury reserves the right to reject any or all bids.

E. C. HOUSE, Clerk of the Police Jury.

Courthouse and Jail

NOTICE TO CONTRACTORS.

Ridgeland, S. C., March 1, 1915. Sealed bids will be received at the office of the Clerk of Court for Jasper County, Ridgeland, S. C., until noon April 6, 1915, for the construction of the Jasper County Courthouse and jail buildings to be erected at Ridgeland, S. C.

Each bid must be accompanied with a certified check for the amount of \$1000, payable to J. E. Gill, Supervisor, as a guarantee that if awarded the contract the successful bidder will promptly enter into contract and furnish a surety bond as required by the specifications.

The right is reserved to reject any and all bids.

Drawings and specifications may be seen at the office of John P. Wise, attorney-at-law, Ridgeland, S. C.; the Builders' Exchange, Atlanta, Ga., and at the office of William A. Edwards, architect, 633 Candler Building, Atlanta, Ga.

Contractors wishing to bid may obtain drawings and specifications from the architect by immediately applying for same, accompanying application with a certified check in the amount of \$25, payable to him, as a guarantee that he will return the drawings and specifications to the architect after the bids are received without cost to the architect. Failing to return same forfeits the \$25 to the architect.

BOARD OF COUNTY COMMISSIONERS, Jasper County, S. C.
J. E. GILL, Supervisor.

Electric-Light Improvements, Kinston, N. C.

Sealed proposals will be received until 5 P. M. of April 6, 1915, by the Mayor and City Council of Kinston, N. C., for Electric-Light-Plant Improvements.

New equipment includes 300 K. W. engine type generators, two belt generators, switchboard, 450 H. P. four-valve engine, condenser, centrifugal pump and motor, return tubular boilers. Bids on alternates to the above will be considered.

Building construction consists of extension to existing structures, station for centrifugal pumps, and about 600 feet of terra-cotta and cast-iron pipe line.

Each proposal must be accompanied by a certified check for not less than five per cent. of the amount of the proposal.

All proposals must be upon forms provided by the city.

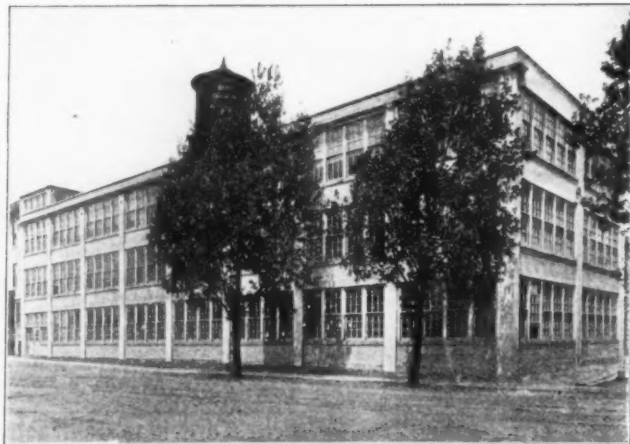
The right is reserved to reject any or all bids.

Specifications, proposal form and plans will be on file in the office of the City Clerk at Kinston, N. C., and may be obtained from the office of the Consulting Engineer in Charlotte, N. C., upon application, accompanied by payment of five dollars, which will be refunded when specifications and plans are returned in good condition within thirty days after the date of receiving proposals.

FRED I. SUTTON, Mayor.

W. B. COLEMAN, Clerk.

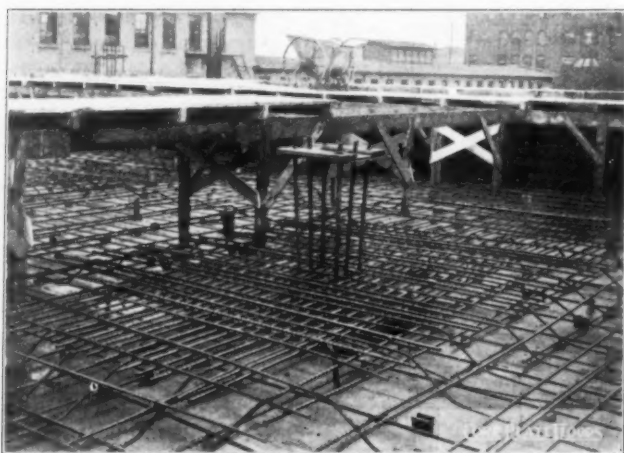
Consulting Engineer: GILBERT C. WHITE, Charlotte, N. C.



Niagara Silk Mill—No. Tonawanda, N. Y.



Interior—Showing Corr-Plate Floor.



Placement of Corr-Plate Floor Reinforcement.

A Story Height Saved in Every Eight

Since reinforced concrete has become the accepted material for industrial buildings, it is important that the right type of floor construction be selected to meet the requirements of each building. Economical design and the right type of reinforcing material are also important.

CORR-PLATE FLOORS

Flat-Slab Type

(Infringe No Patents)

Two-Way System

Save a story height in every eight, and can be placed more quickly at less cost than the four-way construction.

No Beams—No Girders

The Corr-Plate Floor has no beams or girders. The reinforcement is scientifically distributed in the forms to produce a uniform factor of safety at all points, and it is rigidly held in position, thus permitting rapid progress in laying the concrete.

The beamless ceiling permits rapid and economical installation of sprinkler system and overhead shafting—*more light—more air.*

More than \$100,000,000 worth of buildings erected with Corr-Products upon the designs of our engineers, during the past 24 years, without a single failure—*experience is the real test of knowledge.*

Our Engineers have had wide experience working with the designs of buildings for many different purposes. When consulted early enough in the progress of the plans they can be of service not only in the selection of the right type of construction, but also in the preparation of the original layout to produce operating efficiency.

We will work with you and your architect from the time of inception of the building.

Corrugated Bars

It required engineering skill to produce these economies and advantages of design, and it required the right type of reinforcing material—Corrugated Bars—to make the designs safe. Corrugated Bars do not slip. The lugs grip and hold without splitting the concrete.

The knowledge of engineering requirements, which enabled us to design the Corr-Plate Floor, also qualifies us to work with owners and architects upon all of their industrial building problems.

Corrugated Bar Company

415 Mutual Life Building, Buffalo, N. Y.

Boston

New York

Syracuse

Philadelphia

Chicago

St. Louis

Atlanta

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers whether they are advertisers or subscribers or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

Purchased Eighteen Boilers.

Illinois State Board of Control has awarded contract for 18 water-tube boilers to the E. Keeler Company of Williamsport, Pa., manufacturer of boilers. Nine of the boilers are 300 horse-power each and nine are of 400 horse-power and equipped with automatic stokers.

Automobile Lighting and Ignition.

D. Williamson and H. J. Wubbold have organized the D. Williamson Co., 1129 Cathedral St., Baltimore, Md. Mr. Williamson writes his company will have modern facilities for the best service in prompt completion of the work of its experts in installing and repairing lighting and ignition equipments, speedometers, taximeters, electric clocks, etc.

Opens Branch Sales Office.

Owing to its steadily increasing business in the Carolinas, the Clinchfield Portland Cement Corporation of Kingsport, Tenn., has found it necessary to open a branch sales office in Charlotte, N. C. This office, which is in the Commercial Bank Bldg., is in charge of James A. Hudson, and will cover all of North Carolina and the upper half of South Carolina.

Removes Furniture Plant.

Discontinuance of the furniture manufacturing business at Cincinnati, O., and the removal of its plant to Johnson City, is announced by the Williamson Manufacturing Co., 104 Millard St., Johnson City, Tenn. Repairing, upholstering, designing and manufacturing of furniture and cabinet work generally will be carried on at the new location.

Dissolves Partnership.

Barnwell & Jones, who have been practicing architecture in Chattanooga, Tenn., for a number of years, have dissolved partnership, and the business of the firm will be continued under the name of Clarence T. Jones at the same address, 620 Hamilton National Bank Bldg., Chattanooga. Mr. Jones writes that catalogues and other advertising matter pertaining to the building trade will be gladly received.

Installing Automatic Tramway.

The Ambursen Company, 61 Broadway, New York, manufacturer of the Lawson loop-line tramway, flexible conveyors, cable-traction locomotives, etc., is erecting for the Sterling Borax Co. at Patagonia, Arizona, a Lawson automatic tramway 6250 feet long with a net fall of 620 feet, having a capacity of 100 tons of lead-silver ore per day. The tramway generates its own power, requiring only a gasoline engine to handle it when running without load.

New Manager for Elevator Co.

Clarence M. Davison of Pittsburgh, Pa., has resigned as chief engineer of the Best Manufacturing Co. of that city to accept the position of chief engineer and superintendent of the Westbrook Elevator Co., manufacturer of passenger and freight elevators, of Danville, Va. Mr. Davison has had many years of experience in designing and mechanical engineering, and the Westbrook company is fortunate in being able to add such a capable man to its force.

Art Metal Products.

E. H. Morrison, Equitable Bldg., Baltimore, district sales manager of the Art Metal Construction Co. of Jamestown, N. Y., reports activity in the building lines and predicts better business for the coming spring and summer. Recent orders obtained by the company include a \$50,000 contract for supplying the battleship Pennsylvania with steel wardrobe equipment, berths, furniture, fixtures and fittings generally, and a \$14,000 steel fixture contract for the Scottish Rite Temple at Washington, D. C.

Acquires Rights of Frederickson Motor.

The Worlds Motor Co., 233-6 Hippodrome Bldg., Peoria, Ill., is directing attention to improvements in a two-cycle internal com-

bustion engine invented by C. E. Frederickson. The world rights of this motor have been acquired by the Worlds Motor Co., who propose to have aviation motors manufactured, although the idea can be utilized in any form of internal combustion engine. The motor is of the revolving cylinder or revolving type, and will be manufactured in three, five and ten cylinder models.

Portsmouth Refrigerating Machines.

Three "Jack Frost" small refrigerating machines manufactured by the Portsmouth Engine Co. of Portsmouth, O., builder of New Era gas engines and small refrigerating machines, are among recent sales reported by the company. The Portsmouth Engine Co. is inviting correspondence from reliable refrigerating engineers, with a view to making special arrangements and special prices with them for handling its "Jack Frost" high side complete, or if engineers prefer to furnish their own piping, insulation and equipment, just the naked engine.

Offers New Engineering Medal.

Leonard C. Watson, president of the Alberthaw Construction Co. of Boston, Mass., who has just been elected president of the American Concrete Institute, has offered a new prize to be awarded annually by the Institute to the author of the best paper submitted to the Institute during the year. Competition is restricted to members, and the papers must be original in every respect and not previously published elsewhere. All papers submitted to the Institute for publication in the annual volume are eligible to this competition, but the board has the privilege of withholding the medal any year in which no papers of sufficient merit are presented.

Milling Machinery Contracts.

Flour and corn mill machinery contracts recently secured by the Salem Foundry and Machine Works of Salem, Va., include the following installations: Entire machinery equipment of 25-barrel corn and feed mill for J. Blair Day, Petersburg, W. Va.; complete 30-barrel mill, including self-balancing sifter, for Williamson Bros., Norway, S. C.; self-balancing sifter, middlings mill, Monitor cleaning machinery, etc., used in remodeling M. C. Hall's mill at St. George, S. C.; 25-barrel mill for Ayers & Williams, Orangeburg, S. C.; self-balancing sifter for Winder (Ga.) Oil Mill Co.; self-balancing sifter, middlings mill, etc., for remodeling 30-barrel mill belonging to J. A. Hyatt & Co., Sylva, Va., and self-balancing sifter and machinery for remodeling 75-barrel mill at Roanoke, Va., for F. M. Hughson.

TRADE LITERATURE**Terra-Cotta in Church Building.**

Polychrome Atlantic terra-cotta for church interiors and the use of terra-cotta in church construction generally are discussed in the March number of "Atlantic Terra-Cotta," issued monthly for architects by the Atlantic Terra-Cotta Co., 1170 Broadway, New York, and the Atlantic Terra-Cotta Co., Third National Bank Bldg., Atlanta, Ga. Striking illustrations of churches, interior and exterior views, which have used Atlantic terra-cotta in their construction are shown in the publication.

Modern Ventilation Methods.

A pamphlet has been issued by the American Blower Co. of Detroit, Mich., manufacturer of heating, ventilating, purifying, cooling, drying, mechanical draft and blast equipment, containing a comprehensive illustrated description of the ventilating equipment installed in the 16-story Fletcher Savings & Trust Co. Bldg. at Indianapolis, Ind. This equipment includes "Sirocco" multiblade fans of large air-handling capacity, which are installed in the basement to supply fresh air, washed and tempered, to the bankrooms above and to the restaurant located in the basement. An exhaust fan on the 16th floor removes the impure air from the building as a whole. A partial list of office and bank buildings equipped with

American Blower Co.'s apparatus is also contained in the pamphlet.

New Bulletins on Jeffrey Products.

The Jeffrey Manufacturing Co. of Columbus, O., has recently issued a new 48-page bulletin, No. 147, illustrating and describing the prominent features of its complete line of swing hammer pulverizers, giving full information regarding capacities, speeds, horse-power, general dimensions, etc. More than 1000 of these machines are said to be in daily operation reducing limestone, shale, clay, coal, bark, oyster shells, rock for road dressing, etc. Other recent publications include a 19-page bulletin and price list, No. 143, giving complete information about its Standard line of malleable and steel elevator buckets, casings, automatic elevator loaders, etc., and Bulletin No. 167 illustrating and describing the wide variety and adaptability of belt conveyor equipment for handling practically all kinds of material. These bulletins will be sent to interested persons upon request to the company.

Hydraulic Turbines.

The Hydraulic Turbine Corporation, successor to the Camden Water-Wheel Works of Camden, N. Y., in its recently issued illustrated catalogue "D," gives a historical sketch of the development of water turbines, together with a general description of the latest hydraulic turbines designed by the company. Drawings and detailed description of turbine runner classification, illustrations and descriptions of turbine tests and testing flumes, information on power and speed curves and measuring the flow of streams; also tables for calculating discharge and speed of turbines, type characteristics, horse-power developed and other useful data regarding hydraulic turbine operation, are contained in the catalogue. The Hydraulic Turbine Corporation proposes to cover the general field in water-power development from the small private power plant located on the spring brook to the largest development.

Red Gum Facts.

An interesting and comprehensive booklet has recently been published by the Gum Lumber Manufacturers' Association, containing a synopsis of the various features

of red gum and the commercial uses to which it is adapted. Information is given regarding the characteristics of red gum and its various market and uses, its advantages for veneers, furniture, doors and interior trim, automobile bodies, wood pulleys, flooring, ceiling and siding, paving blocks and for the manufacture of a large number of specialties are concisely set forth. Data is also given for finishing red gum to the best advantage and for taking care of hardwood doors and trim. This little booklet contains much of interest to architects, contractors and those about to build, as well as manufacturers of woodworking plants of different kinds. Copies can be obtained from the Gum Lumber Manufacturers' Association, 1339-44 Bank of Commerce and Trust Bldg., Memphis, Tenn.

Vanadium Steel in Automobile Construction.

"American Vanadium Facts," published by the American Vanadium Co., 341 Vanadium Bldg., Pittsburgh, states that among the parts for which vanadium steel is used in the 1915 models of the Mitchell new light "six" and light "four," manufactured by the Mitchell-Lewis Motor Co., Racine, Wis., the following are included: Propeller shaft, transmission shaft and gears, rear axle drive shafts, rear axle driving gears and pinions, front axle spindles and complete steering mechanism. The company claims the use of vanadium steel was brought about because of its great strength and comparative lightness, providing an increased factor of safety where best engineering practice demands a maximum margin of capacity. Vanadium cast steel motor truck wheels and "Beaco" vanadium steel worn axle housings are illustrated and described. Other items of interest in the February number are: Vanadium steel frames for Southern Pacific Mikado type locomotives, proposed M. C. B. standard couplers, and current orders for vanadium steel locomotive parts. A short sketch of the life of J. Leonard Replogle, who recently resigned as vice-president and general manager of sales of the Cambria Steel Co. of Philadelphia, to accept the vice-presidency and general management of sales of the American Vanadium Co., is also given in this issue of "American Vanadium Facts."

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If desirous of moving the plant, it will be sold per spindle with everything that goes with it, at a low price.

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An Eight-Set Knitting Mill

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All in first-class condition. Will sell cheap and take lumber in payment.
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Globe Power Hack Saw, 8" capacity.

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14"x8" Hendey Lathe.
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24"x42" Allis, left hand.
18"x42" Watts-Campbell, right hand.
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why our properly rebuilt Machinery gives satisfaction

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25 H. P. 9x12 Nagle Center-Crank Plain Slide-Valve Engine in excellent condition at low price.

Motor-Driven Centrifugal Pump, 250 gals. per min. against a 25-ft. head, practically new, at half price. Will equip with any style motor desired.

Electrical apparatus of all kinds at lowest prices.
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2 500-gal. 14"x7¼"x12" Underwriter's Fire Pumps.

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150 K. W. 250-volt D. C. Crocker-Wheeler, with Wright Horizontal Tandem Compound 14½"x34"x16" Engine.
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50 K. W. 125-volt D. C. Westinghouse, with Westinghouse Vertical Compound Automatic Engine 10"x18"x10".
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Motors, direct and alternating current, all sizes from 1 to 100 H. P., in stock for immediate delivery.

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35 lb., 40-lb., 56-lb., 60-lb., 70-lb., 80-lb.,
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A Buffalo Steam Ten-Ton Tractor and Twelve Five-Ton Wagons for use with it. Used about three months.

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Also, 3000 tons of Relaying Rails, all weights. Write us for prices and terms.

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First-Class Condition.

Lowest Prices Ever.

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About 700 tons, 56 lbs. per yard, with plates.
About 43 tons, 53 lbs. per yard, with plates.
About 600 tons, 60 lbs. per yard, with plates.
About 800 tons, 67 lbs. per yard, with plates.

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All Weights

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Frogs, Switches, Bolts, Nuts, Spikes, and all Track Accessories.

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Also coaches, locomotives, steam shovels, box flat, gondola, hopper-bottom and Rodgers Ballast cars.

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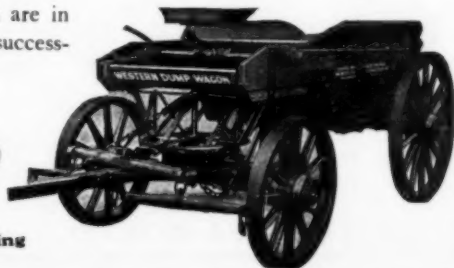
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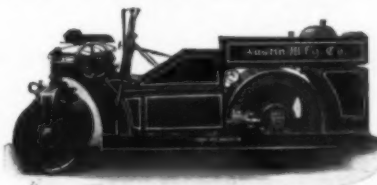
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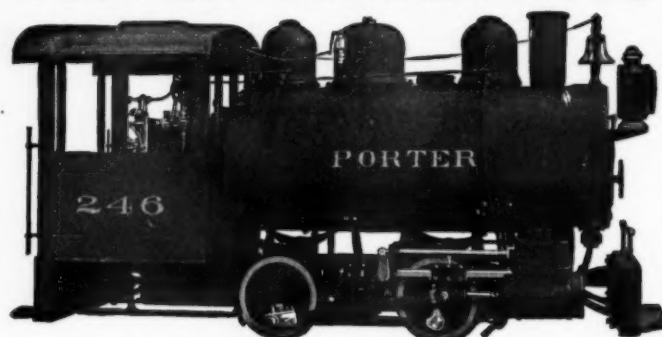
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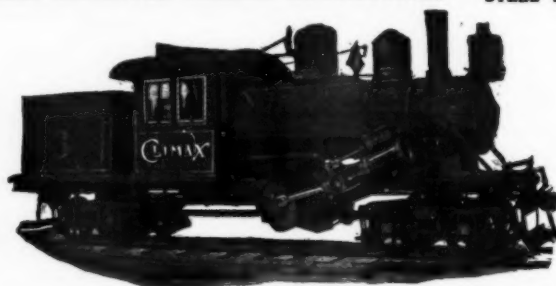


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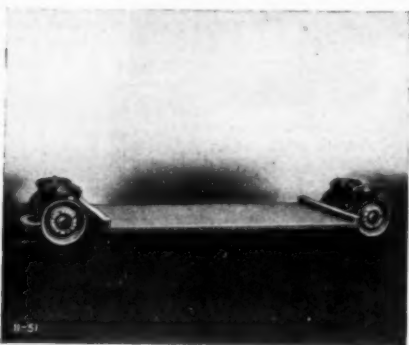


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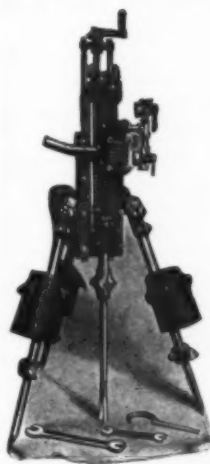
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A good judge of trucks as well as one uninformed may make a mistake in his first truck purchase. But when he continues to buy the same truck again and again as his needs expand . . . the evidence of satisfaction is overwhelming.

Whether you are ready for purchase this year or not . . . permit us to send you illustrated data of White Trucks now in operation built to meet delivery conditions similar to your own.

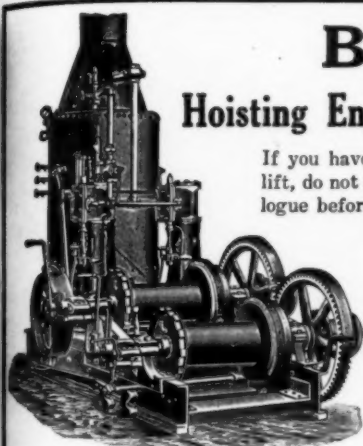
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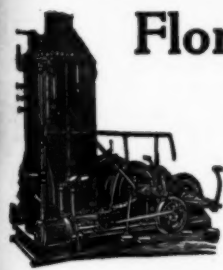
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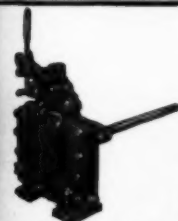
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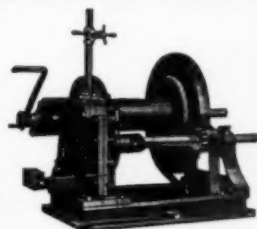
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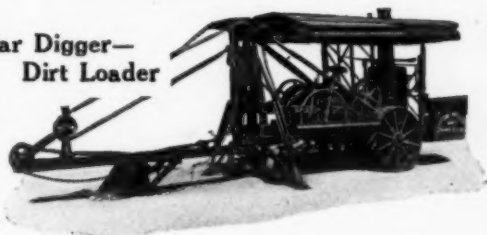
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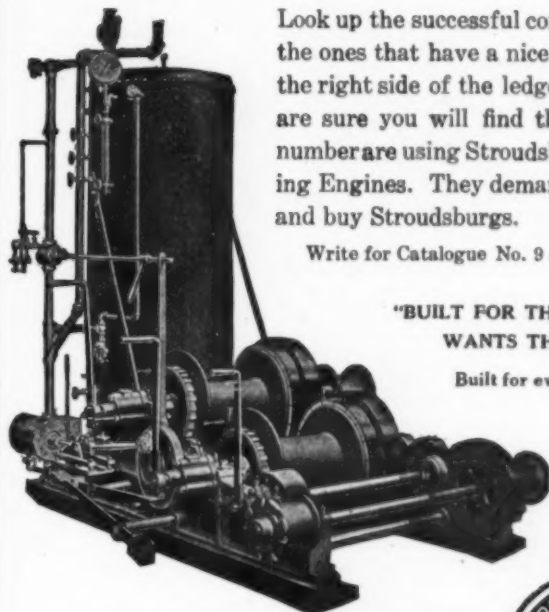
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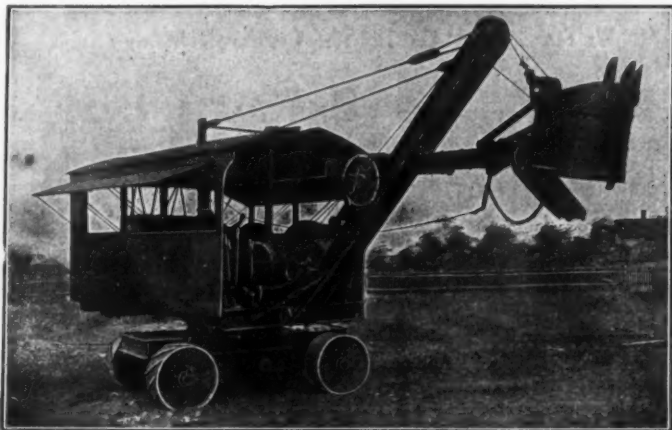
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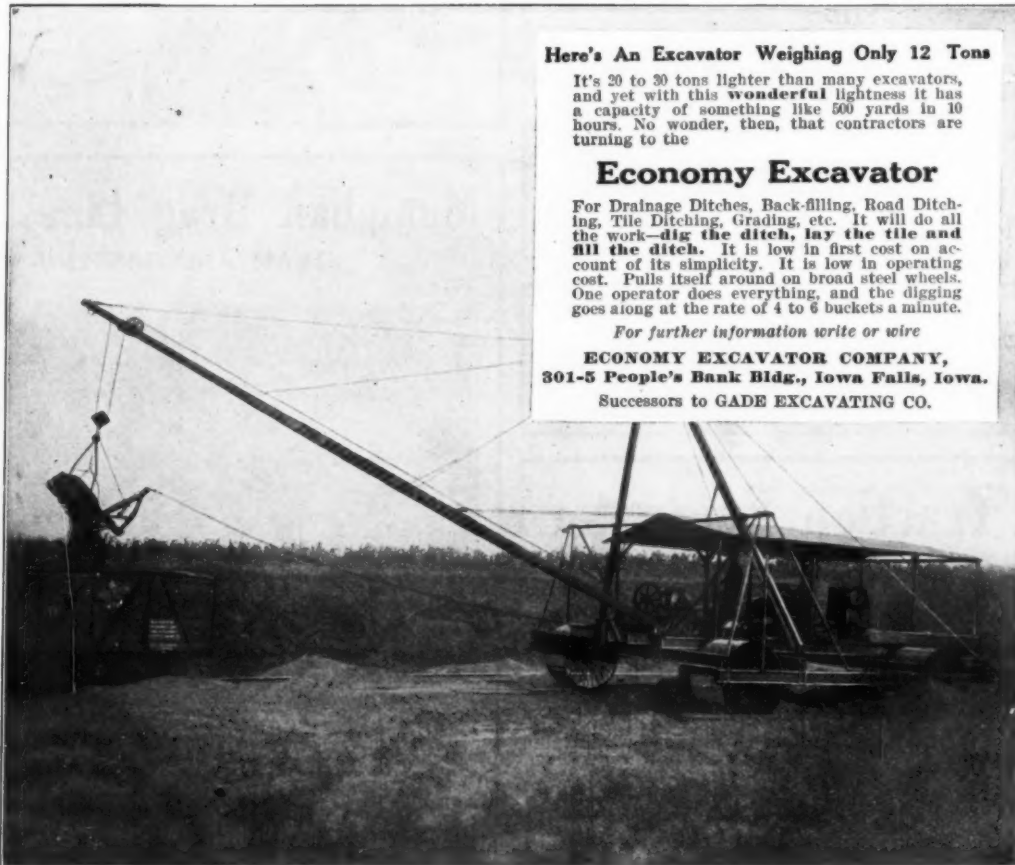
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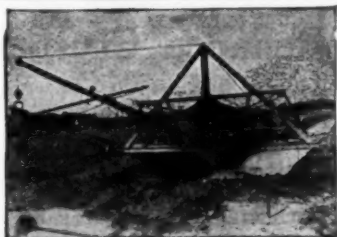
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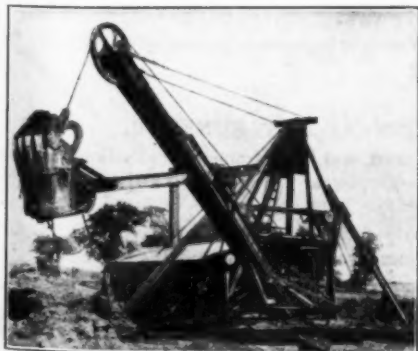
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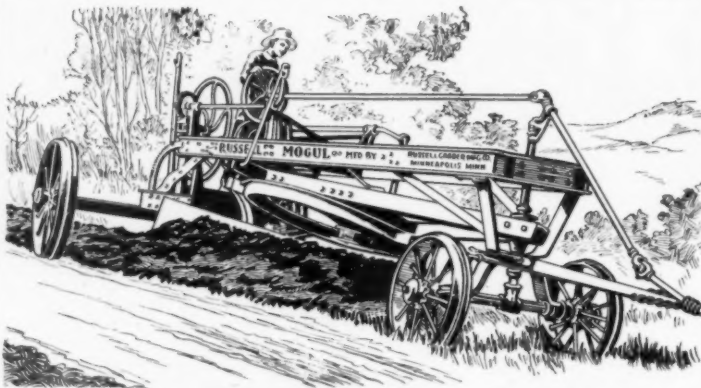
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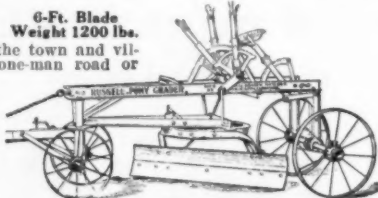
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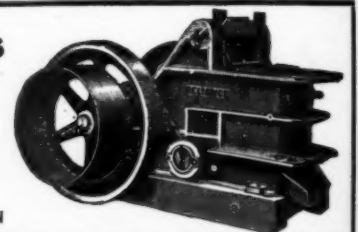
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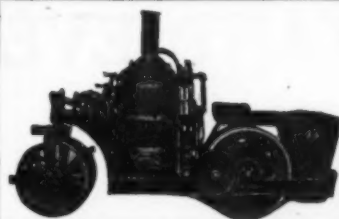
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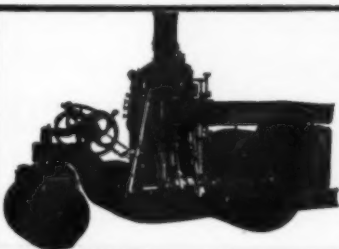
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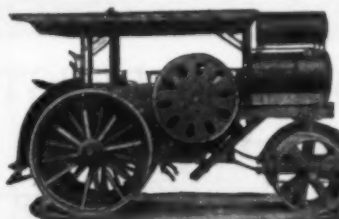


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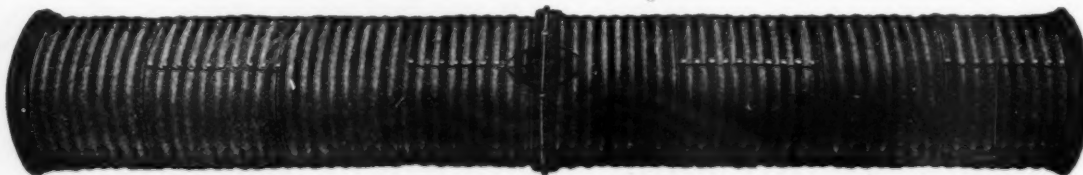
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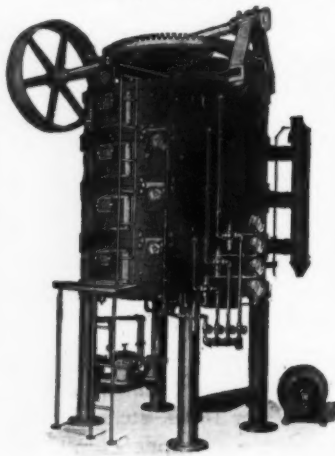
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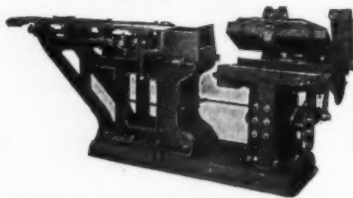


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—CREOSOTED—

Ties
Poles
Piling
Cross-Arms
Bridge Timbers
Paving Blocks

We are in position to do all classes of framing before treatment.

Capacity 100 million feet B. M. per annum.

Easy access to New Orleans and all Gulf ports west of Mississippi.

Northern points served to advantage.

Western Union, A. B. C., and American Lumberman Telecode

WORKS: Texarkana, Texas, and Beaumont, Texas.

Address General Office, GALVESTON, TEXAS

Reilly Improved Creosote Oil

IT PERMANENTLY WATERPROOFS

Paving Blocks preserved with the Reilly Improved Creosote Oil never "Bleed," Buckle or Blow Up. Specifications for the asking.

Republic Creosoting Company, Indianapolis, Ind.

NATIONAL LUMBER & CREOSOTING CO.

Manufacturers of Lumber, Ties, Timbers, Piling, Poles and Paving Blocks
TREATING PLANTS

TEXARKANA, ARK.

Sales Office—HOUSTON, TEXAS

HOUSTON, TEXAS

SOUTHERN CREOSOTING COMPANY, Ltd., SLIDELL, LA.

U. S. A.

Twenty-eight miles from New Orleans, La., surrounded by the finest timber lands in the South. Facilities for shipping by water and rail.

Creosoted Ties, Telegraph Poles, Cross Arms, Timber, Piles and Paving Blocks

Capacity, 22,000,000 feet per annum.
A. B. C. Code used. Cable Address, Creosote, Slidell, La.

AMERICAN CREOSOTE WORKS, NEW ORLEANS, LA.

STATION B.

Creosoted Cross Arms, Lumber, Paving Blocks, Piles, Poles and Ties

Private free wharf for ocean vessels
at New Orleans

Capacity 100 million feet board measure annually

Western Union and A. B. C. 5th Edition Codes.

Plant at New Orleans, La.

Plant at Louisville, Miss.

CREOSOTING

SOUTHERN WOOD PRESERVING CO.
ATLANTA, GEORGIA

WOOD BLOCK PAVING

RAILWAY TIES AND TIMBERS

Cross Arms

Poles

CREOSOTE WORKS TREATING PLANT

PENSACOLA, FLA.

PAVING BLOCKS, BRIDGE TIMBERS, CROSS

TIES, CROSS ARMS, PILING AND POLES

SOUTHERN PAVING CONSTRUCTION CO., GENERAL OFFICE, CHATTANOOGA, TENN.



MOORE DRY KILNS

for drying all kinds of Lumber

35 years' experience

L. MOORE DRY KILN CO.
Jacksonville, Fla.

Special Hydraulic Presses

DESIGNED TO MEET REQUIREMENTS

WE MANUFACTURE A FULL LINE OF COTTON SEED OIL MACHINERY
ACCUMULATORS, AIR AND HYDRAULIC. FULL LINE OF SMOK-
ING AND PLUG TOBACCO MACHINERY

THE CARDWELL MACHINE CO., Richmond, Va., U. S. A.

LUMBER STACKERS

SOULE STEAM FEEDS
DOGS, LUMBER BUGGIES, ETC.

WRITE FOR CATALOG M

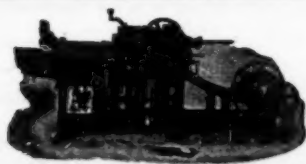
SOULE STEAM FEED WORKS, Meridian, Miss.

SMITH STANDS FOR SUPERIORITY

IN MACHINES FOR

WORKING WOOD

We build more than 150 different machines for woodworkers. Loose leaf catalogue free, showing our complete line.



H. B. SMITH MACHINE CO., Smithville, N. J. NEW YORK ATLANTA SAN FRANCISCO CHICAGO

E. E. TITUS FOUNDER and MACHINIST

PETERSBURG, VA.

Manufacturer of the Latest Improved

VENEER CUTTING MACHINES

With Impression Rolls for BASKETS, ORANGE BOXES, ETC., ETC.
Butter Dish, Berry Box, Fruit Basket, Orange Box, California Grape Basket and Truck
Barrel Machinery a Specialty.

CONTRACTS TAKEN FOR COMPLETE OUTFITS

THE STEEL MONARCH OF THE FOREST



THE MIGHTY MONARCH STEEL STUMP PULLER

Double, Triple and Quadruple Power. Pulls stumps 7 feet in diameter. Pulls 300 stumps a day. Prepares stump land for the use of all other farm implements, and to raise bumper crops. The ONLY Stump Puller guaranteed for FIVE YEARS. For full information address Dept. M. R.

ZIMMERMAN STEEL CO., Lonetree, Iowa

—WILSONS—

STEEL ROLLING DOORS

WOODEN ROLLING PARTITIONS

J. M. VAN HARLINGEN, Southern Agent, Candler Bldg., ATLANTA, GA.

—TERRELLS—

METAL LOCKERS

METAL SHELVING

OPPORTUNITIES IN THE SOUTH

— FOR —

Manufacturers, Investors, Merchants, Farmers and Homeseekers

In the following pages leading railroads and a number of towns and cities invite your attention to the opportunities possessed by the rapidly developing South for every line of industry, for investments, and as a place for home-making in the city and on the farm.

The marvel of the day, commanding the world's attention to a greater extent probably than the development of any other section has ever received, is the amazing material unbuilding of the South. Everywhere men in every walk of life are beginning to study the South. They are coming to realize something of its matchless resources, to know something of the opportunities which it presents for manufacturing and for mining operations, for city building activities, for the utilization on a large scale of the cut-over timber lands and the reclaimable wet lands of the South.

With a view to presenting to the world from week to week the resources and the growth and the opportunities which are offered for all of these things, some of the leading railroads of the South and Southwest, some of the great public service corporations intimately identified with the upbuilding of this section and some of its progressive towns and cities from week to week tell the story of what they have to offer to the manufacturer, to the investor, to the merchant, to the pleasure-seeker, to the health-seeker. Study the pages that follow, and if you are at all interested in knowing about the South and its opportunities, its resources and its progress, if you want to keep in touch with that section which is attracting greater attention than any other part of America, get in communication with the organizations whose advertisements are to be found in the following pages.

THE WEST POINT ROUTE

Atlanta & West Point Railroad

THE WESTERN RAILWAY OF ALABAMA

Offers excellent locations for

Truck, Fruit, Stock and General Farming

Available Factory Sites. Abundance of Raw Material and Good Transportation Facilities
Write for information.

E. S. CENTER, General Agent, ATLANTA, GA.

To the

MANUFACTURER and DISTRIBUTOR

Abundant supplies of coal, coke, iron, timber and other raw materials lie in the regions of Georgia and Alabama which are traversed by the

Central of Georgia Railway

Cheap electric power, numerous undeveloped water-powers, good home markets and excellent shipping facilities. Therefore, manufacturing conditions are ideal.

Many of the cities on the Central of Georgia Railway occupy advantageous positions for distributing warehouses, and a number of the larger northern and eastern manufacturers supply their southeastern trade from branch houses in these cities.

Full and detailed information upon application.

J. M. MALLORY, Industrial Agent
SAVANNAH, GEORGIA

Hosiery Mill Location

Will be glad to confer with interested parties regarding excellent location for hosiery mill. Splendid building now ready for machinery.

Healthful location, ample supply of labor, citizens of community interested in seeing development made.

Seaboard Air Line Railway

J. A. PRIDE, General Industrial Agent

NORFOLK, VA.

Attractive Factory Sites ON THE Illinois Central Railroad

For full particulars address the undersigned

Free books of information on farm lands issued by the
Illinois Central Railroad

ABOUT THE SOUTH

MISSISSIPPI—A WONDERFUL AGRICULTURAL STATE

LOUISIANA—NATURE'S GARDEN SPOT

MR. FARMER, THE YAZOO-MISSISSIPPI DELTA

IS CALLING YOU

THE PHILOSOPHY OF A NORTH MISSISSIPPI

FARM

SOUTH MISSISSIPPI, THE SETTLER'S CHANCE

Everyone who would like a Southern home or investment should have a copy of one or all of these books. For free copies address

J. C. CLAIR

Industrial and Immigration Commissioner

ILLINOIS CENTRAL RAILROAD COMPANY

135 East 11th Place, CHICAGO, ILL.

**Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina,
South Carolina, Tennessee, Virginia, Southern Illinois, Southern Indiana**

What We Offer You

THERE are millions of acres of the most productive farm, pasture and orchard lands in the South offering distinct advantages to homeseekers. Good farmers can make more money in the South from the labor and capital invested than elsewhere in America. Careful investigation will prove this and also that the most pleasant, healthful home conditions are in this section. One can find no better region for dairying, or for poultry and live stock raising. Abundant grasses and forage plants, pure water, the long grazing seasons, the low cost of production and the good markets make the South unequalled today in opportunities for these industries. Nearly all authorities who have studied the situation agree that this is so. For fruit and truck raising, for general or special farming, there are all conditions for success. Lands in good locations are to be had at lowest prices for equally productive lands anywhere.

The South not only offers the opportunity for farm homeseekers, but needs them. The Southern Railway Lines want settlers in their territory who can turn the available lands into highly productive places to furnish the foodstuffs necessary for the South itself and to take advantage of the outside markets which may be supplied. They are anxious to build up their territory as part of their efforts to make their own properties more productive.

For this reason their Industrial and Agricultural Department is maintained. Its co-operation is offered in every way possible to the homeseeker who will investigate the opportunities of the South; every assistance is extended which will enable him to find the location where are the home conditions he desires and which will give him prosperity. Immigration agents will advise with him. The information about lands, crops and the various sections and conditions along the roads, carefully collected by the companies, is at his command. Careful attention will be given to secure for him the special information desired on particular subjects or localities. Booklets and other printed matter will be sent on application.

After the homeseeker is located, trained and practical agricultural field agents, live stock, dairy and poultry agents familiar with local conditions will be at his service in solving any of the problems which his new location may bring. Market agents will help him to find the best market for his products.

What we do for the homeseeker, we also do for the manufacturer looking for a location for his plant. Industrial agents will help him solve the questions as to the proper point where raw materials may be satisfactorily assembled; where labor, power, transportation and market conditions are best; where necessary lands are properly located and to be had; where local capital, if wanted, will join in building the plant, and where all the other conditions which help to make the success of the industry and the welfare of its labor are to be found.

We offer our services in behalf of a territory reached by nearly 10,000 miles of railway, the people of that territory and a company which is earnestly at work in co-operation with every person or interest affected to build up the territory and advance the fortunes of those who are developing the lands and the many opportunities in the South.

Southern Railway
Southern Railway in Mississippi
Mobile & Ohio Railroad
Georgia Southern & Florida Ry.
Virginia & Southwestern Ry.
Augusta Southern Railroad

M. V. RICHARDS
Industrial and Agricultural Commissioner
WASHINGTON, D. C.

Danville & Western Railway
Tallulah Falls Railway
Blue Ridge Railway
Hawkinsville & Fla. South'n. Ry.
Macon & Birmingham Railway
Northern Alabama Railway

Tidewater Virginia's Unequaled Rail and Water Shipping Facilities

The complete and extensive transportation facilities, both rail and water, that are enjoyed by that section of Tidewater Virginia in which the cities of Richmond, Norfolk, Portsmouth, Petersburg and Suffolk are located should alone prove a compelling inducement for manufacturers to establish their industries in this territory.

Think of the fact that there are eight big railroad lines—the Southern Railway, Atlantic Coast Line, Seaboard Air Line, Chesapeake & Ohio, Norfolk & Western, Virginian, Norfolk-Southern and New York, Philadelphia and Norfolk—having their termini here.

These roads have a combined mileage of over 20,000 miles and extend throughout nearly every Southern State, and in addition have direct connection with the leading trunk lines of the country.

What other place can even rival this section with such magnificent and extensive railroad distributing service?

In addition, in Tidewater Virginia at Hampton Roads there is one of the world's finest harbors, from which ply regularly vessels between this section and not only the leading ports along the Atlantic Seaboard and Gulf Coast of this country, but also the leading ports in every part of the world.

Combining these unsurpassed railroad and water transportation services nowhere can there be found a section so advantageously located to assemble raw materials and to distribute finished products.

Then, with these facts in mind, consider further that the Southern territory traversed by these railroads abounds in vast supplies of inexhaustible raw materials suitable for nearly every class of manufacture, thus giving added importance to Tidewater Virginia as an ideal site for diversified industries.

No manufacturer or business man can study the advantages with which this section has been endowed by nature and improved by man without recognizing it as a location of wonderful strategic and economic value.

This company's faith in Tidewater Virginia is evidenced by its large investment in the electric railway, light and power utilities which it operates in the five leading cities, and in the spirit of encouraging and aiding the development of this territory we will gladly furnish detailed information regarding openings for specific industries and in other ways co-operate with those desiring to study the peculiar and manifold advantages found here.

Virginia Railway and Power Company

RICHMOND

NORFOLK

PETERSBURG

PORTSMOUTH

SUFFOLK

VIRGINIA

Johnson City, Tenn.

The Growing Industrial Center

Manufacturers seeking a location where varied raw materials can be economically assembled and the finished products distributed over a wide consuming area should investigate the facilities enjoyed by Johnson City, Tenn.

Johnson City is located in the heart of the section that possesses such important raw materials as coal, timber, clays, limestone, iron ores, etc., thus offering opportunities for varied industries.

Johnson City is directly on the main lines of both the Clinchfield and the Southern Railways, which insures unexcelled shipping facilities in all directions.

Johnson City is in close proximity to large coal fields which provide a plentiful supply of high-grade coal at comparatively small cost, while near the city are several sites available for hydro-electric development.

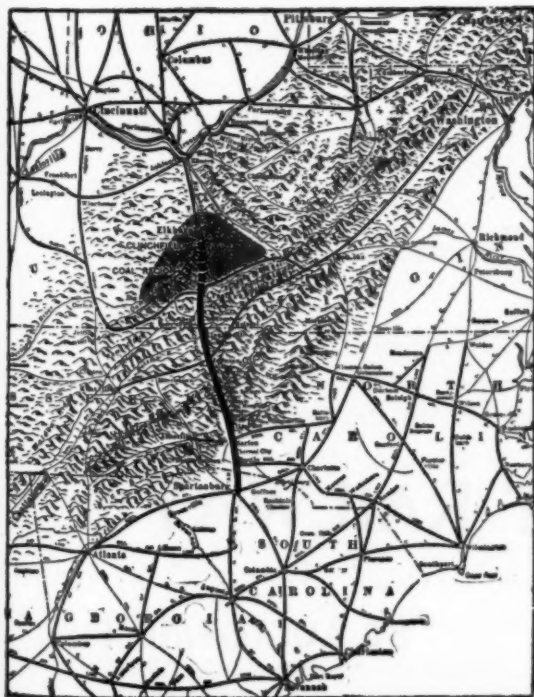
Johnson City has an altitude of 1634 feet, giving a dry, healthful climate.

Johnson City has an abundant supply of fine water and a modern water-works system for supplying homes and industries.

Johnson City has a plentiful supply of white labor, with the mountain sections to draw upon to an unlimited extent.

Johnson City offers an especially fine opportunity for the establishment of wood-working plants of various kinds, textile mills, etc.

Johnson City's location, railroad facilities, abundant raw materials and labor, fine climate and cheap fuel should merit the consideration and investigation of those contemplating the establishment of industries in the South.



Our booklet "The Land of Opportunities," telling of the remarkable country opened up by the Clinchfield, will be sent on request, as well as information regarding opportunities at Johnson City.

Carolina, Clinchfield & Ohio Rwy.

"THE ROAD OF OPPORTUNITY"

R. F. BREWER, Industrial Agent

Johnson City, Tenn.

DAIRYING PROFITABLE IN FLORIDA

Florida needs thousands of intelligent dairy farmers who will make the most of the unparalleled advantages that this State has to offer them.

Every year more than a million dollars is sent to other States to pay for needed dairy products, when it is a matter of common knowledge among Florida dairymen that conditions in this State are favorable not only to the production of all the milk and cream used, but with proper effort Florida can produce immense quantities for export.



A FLORIDA DAIRY HERD OF JERSEYS

In the first place, the protein feeds necessary to feed dairy stock can be grown in Florida in great profusion and in great variety. Cowpea hay, analyzing sixteen per cent. protein, is equal pound for pound to the best bran. Velvet bean hay and beggarweed are also high in protein content. In carbohydrate feeds we have an abundance in Japanese cane, sweet potatoes, cassava and others. There are any number of other feed crops and pasture grasses in addition to corn silage that can be produced in quantities in nearly all parts of the State.

No greater opportunity exists in Florida today than that which is open to the dairy farmer. The supply of dairy products is always far short of the demand, necessitating, as stated above, sending out of the State over one million dollars a year for such products.

A splendid home market, therefore, is awaiting those who will take advantage of Florida's opening for dairy farming.

"Live Stock Farming in Florida" is the title of an interesting illustrated booklet containing a fund of authentic data and information on this subject. We will gladly send it to those desiring to investigate this opportunity.

FLORIDA EAST COAST RAILWAY

(FLAGLER SYSTEM)

J. E. INGRAHAM, Vice-President

ST. AUGUSTINE, FLA.

HOMESEEKERS' RATES FOR 1915

Seaboard Air Line Railway

The Progressive Railway of the South

Announces the establishment of attractive Round-Trip Homeseekers' Rates to Progressive Florida.

TO	FROM	
	WASHINGTON, D. C.	CINCINNATI, OHIO
	January 12th, February 9th and FIRST and THIRD TUESDAYS in each succeeding month.	January 5th and 19th and FIRST and THIRD TUESDAYS in each succeeding month.
TICKETS GOOD FOR 21 DAYS		
NORTH FLORIDA		
Lake City	\$22.65	\$27.10
Quincy	24.55	25.60
Tallahassee	24.45	25.60
THE BEAUTIFUL LAKE COUNTRY		
Ocala	25.00	30.00
Orlando	25.00	30.00
Oviedo	25.00	30.00
Leesburg	25.00	30.00
Tavares	25.00	30.00
POLK COUNTY HIGHLANDS		
Bartow	25.00	30.00
PEERLESS PINELLAS		
St. Petersburg, Clearwater, Tarpon Springs, Elfers via Tampa	25.00	30.00
THE FAMOUS MANATEE COUNTY		
Palmetto, Parrish, Terra Ceia Manatee, Bradentown, Bee Ridge Oneco, Sarasota Venice	25.00	30.00
TAMPA, PLANT CITY	25.00	30.00

These tickets will be on sale at Washington, D. C., January 12th and February 9th, and two dates in each month thereafter. At Cincinnati on January 5th and 19th, and two dates in each succeeding month—the FIRST and THIRD TUESDAYS—good for 21 days. You can stop at Jacksonville, Florida's greatest city. It will repay you. Stopovers also south of Jacksonville going and returning.

The rates and service from The Nation's Capital, WASHINGTON, offers splendid opportunity to the people from the Eastern States to make a Florida trip cheaply and comfortably.

The CINCINNATI rates offer a similar opportunity to the people of the Central States.

You can find attractive openings in the progressive State of Florida. We shall be glad to answer your inquiry for complete information.

SEABOARD AIR LINE RAILWAY

The Progressive Railway of the South

J. A. PRIDE, General Industrial Agent

NORFOLK, VIRGINIA

CLASSIFIED INDEX OF ADVERTISEMENTS.

- Abrasive Materials.**
Carborundum Co., Niagara Falls, N. Y.
Vitrified Wheel Co., Westfield, Mass.
- Accountants.**
Baltimore Audit Co., Baltimore, Md.
Black & Co., Baltimore, Md.
- Accumulator. (Hydraulic.)**
The French Oil Mill Mch. Co., Piqua, Ohio.
- Acetylene Service.**
Frest-O-Lite Co., Inc., The, Indianapolis, Ind.
- Adding Machines.**
Burroughs Adding Machine Co., Detroit, Mich.
- Agricultural Implements.**
Myers & Bro., F. E., Ashland, O.
- Air Compressors. (Stationary and Portable.)**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Chicago Pneumatic Tool Co., Chicago, Ill.
Clayton Air Compressor Works, Cambridge, Mass.
De La Vergne Machine Co., New York, N. Y.
General Electric Co., Schenectady, N. Y.
Laidlaw-Dunn-Gordon Co., Cincinnati, Ohio.
Sullivan Mch. Co., Chicago, Ill.
- Aluminum Products. (Bars, Sheets, Tubes.)**
Aluminum Company of America, Pittsburgh, Pa.
- Ammonia Valves and Fittings.**
Frick Co., The, Waynesboro, Pa.
York Mfg. Co., York, Pa.
- Anti-Friction Metals.**
Bailey Leiby Co., Charleston, S. C.
- Architects.**
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Gatlin, W. R., Hopkinsville, Ky.
Milburn, Helster & Co., Washington, D. C.
Sirrre, J. E., Greenville, S. C.
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Weber & Co., F., Philadelphia, Pa.
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Chesapeake Iron Works, Baltimore, Md.
Dietrich Brothers, Baltimore, Md.
Schreiber & Sons Co., The, Cincinnati, O.
Snead Architectural Iron Wks., Louisville, Ky.
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- Art Glass.**
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Southern Asbestos Mfg. Co., Inc., Richmond, Va.
- Asbestos Products.**
Asbestos Protected Metal Co., Pittsburgh, Pa.
John-Manville Co., H. W., New York, N. Y.
- Asphalt.**
Gulf Refining Co., Pittsburg, Pa.
Standard Oil Co., Inc., Newark, N. J.
U. S. Asphalt Refining Co., New York, N. Y.
- Asphalt Mixers.**
Erie Machine Shops, Erie, Pa.
- Asphalt Paving Plants.**
Gummer & Son Co., F. D., The, Cleveland, Ohio.
- Automobile. (Gasoline Passenger.)**
White Co., The, Cleveland, Ohio.
- Automobiles. (Second Hand.)**
Mar-Del Mobile Co., Baltimore, Md.
- Axles. (See Car Wheels, Axles and Trucks.)**
- Babbit Metal. (See Anti-Friction Metal.)**
- Ballast. (Railroad.)**
American Ballast Co., Knoxville, Tenn.
Bald Mountain Quarry, Newson, N. C.
Chickamauga Quarry & Const. Co., Chattanooga, Tenn.
- Bar. (Refined and Galvanized.)**
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Weaton & Brookler Quarry Co., Columbia, S. C.
- Bars. (Steel, Rounds, Flats and Squares.)**
Gulf States Steel Co., Birmingham, Ala.
Fardey Works, O., Perth Amboy, N. J.
- Bars, Wire, Wire Fabric, etc. (For Reinforced Concrete.)**
Cincinnati Iron & Steel Co., Cincinnati, O.
Corrugated Bar Co., Buffalo, N. Y.
Hoffman & Co., Inc., R. O., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Laclede Steel Co., St. Louis, Mo.
- Bearings. (Oilless.)**
Metalline Co., Long Island City, N. Y.
- Bedford Stone**
Bedford Steam Stone Works, Bedford, Ind.
- Belting. (Leather, Canvas, Rubber.)**
American Supply Co., Providence, R. I.
Bailey-Leiby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore, Md.
Cameron & Barker Co., Charleston, S. C.
Chesapeake Belting Co., Baltimore, Md.
Druid Oak Belting Co., Inc., Baltimore, Md.
Frederick Belting Co., St. Louis, Mo.
Gandy Belting Co., Baltimore, Md.
Graton & Knight Mfg. Co., Worcester, Mass.
Main Belting Co., Philadelphia, Pa.
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Smith-Courtney Co., Richmond, Va.
- Belting. (Chain.)**
Bartlett & Snow Co., C. O., Cleveland, O.
Caldwell & Sons Co., H. W., Chicago, Ill.
Jeffery Mfg. Co., Columbus, O.
Link-Belt Co., Nicetown, (Philadelphia) Pa.
- Belt Cement.**
Graton & Knight Mfg. Co., Worcester, Mass.
- Belt Conveyors.**
Jeffery Mfg. Co., Columbus, O.
- Belt Dressing.**
Dixon Crucible Co., Joseph, Jersey City, N. J.
Gandy Belting Co., Baltimore, Md.
Graton & Knight Mfg. Co., Worcester, Mass.
- Belt Lacing. (Leather.)**
Graton & Knight Mfg. Co., Worcester, Mass.
- Belt Lacing and Supplies. [See Belting. Leather, Canvas, Rubber.]**
- Bicarbonate Soda. (Sap Stain Lumber Dip.)**
Church & Dwight Co., New York, N. Y.
- Billets. (Basic Open Hearth Quality.)**
Gulf States Steel Co., Birmingham, Ala.
- Bins (Steel)**
Merritt & Co., Camden, N. J.
- Blackboards. (Slate.)**
East Bangor Con. Slate Co., The, East Bangor, Pa.
Johnson, E. J., New York, N. Y.
- Blocks. (Paving Grooved.)**
American Concrete Works, New Orleans, La.
- Block Filters**
Barrett Mfg. Co., Phila. Pa.
Standard Oil Co., Newark, N. J.
U. S. Asphalt Refining Co., New York, N. Y.
- Blowers and Exhaust Fans.**
American Blower Co., Detroit, Mich.
Buffalo Forge Co., Buffalo, N. Y.
General Electric Co., Schenectady, N. Y.
Green Fuel Economiser Co., Matamoras, N. Y.
Hammond Bros. Impact Pulv. Co., Chicago, Ill.
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
- Blow Torches. (For Soldering and Brazing.)**
Frest-O-Lite Co., Inc., The, Indianapolis, Ind.
- Blueprinters.**
Childrey Co., Richmond, Va.
- Boilers.**
Babcock & Wilcox Co., New York, N. Y.
Bailey & James Boiler & Mch. Co., Joplin, Mo.
Cameron & Barker Co., Charleston, S. C.
Casey-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Cokeville Boiler Works, Cookeville, Tenn.
Cole Mfg. Co., R. D., Newnan, Ga.
Gibbs Machinery Co., Inc., Columbia, S. C.
Harris Bros. Co., Chicago, Ill.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., H. W., Burlington, Ia.
Keystone Boiler & Foundry Co., Columbia, Pa.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
Lombard Iron Works, Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works, Burlington, Ia.
Phoenix Iron Works Co., Meadville, Pa.
Schofield Iron Works, Macon, Ga.
Southern Engine & Boiler Works, Jackson, Tenn.
Valk & Murdoch Iron Works, Charleston, S. C.
Vogt Machine Co., Henry, Louisville, Ky.
Walsh & Weidner Boiler Co., Chattanooga, Tenn.
Zellicker Supply Co., Walter A., St. Louis, Mo.
- Boiler Covering.**
Chesapeake Roofing & Pipe Covering Co., Baltimore, Md.
- Boiler Graphite.**
Dixon Crucible Co., Joseph, Jersey City, N. J.
- Boiler Tubes. [See Tubes, Boiler.]**
- Bolts, Nuts, Rivets, Studs and Washers.**
Progressive Mfg. Co., Torrington, Conn.
Republic Iron & Steel Co., Youngstown, O.
Upson Nut Co., The, Cleveland, O.
- Bonds. (Surety, etc.)**
Fidelity & Deposit Co. of Baltimore, Baltimore, Md.
- Bottling Outfits.**
Viller Mfg. Co., Milwaukee, Wis.
- Brass Goods.**
Bailey-Leiby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, O.
Lunkenheimer Co., The, Cincinnati, Ohio
Powell Co., Wm., Cincinnati, O.
- Brass Railing and Grilles.**
Newman Mfg. Co., Cincinnati, Ohio
- Brewers' Machinery.**
Viller Mfg. Co., Milwaukee, Wis.
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Hood Brick Co., B. Miffin, Atlanta, Ga.
- Brick. (Building.)**
Am. Enamelled Brick & Tile Co., New York, N. Y.
Hood Brick Co., B. Miffin, Atlanta, Ga.
Hydraulic Press Brick Co., St. Louis, Mo.
Kingsport Brick Corp., Johnson City, Tenn.
Scott Brick Co., Alex. A., Knoxville, Tenn.
Standard Brick Co., Macon, Ga.
- Brick. (Enamelled.)**
Am. Enamelled Brick & Tile Co., New York, N. Y.
- Brick. (Fire.)**
Killian Fireproofing & Brick Works, Killian, S. C.
Louisville Fire Brick Works, Highland Park, Ky.
Mexico Brick & Fire Clay Co., Mexico, Mo.
Pomona Terra-Cotta Co., Pomona, N. C.
Standard Brick Co., Macon, Ga.
Stevens' Sons Co., H., Macon, Ga.
Union Mining Co., Mt. Savage, Md.
- Brick. (Paving.)**
Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingis Shale Brick Co., Birmingham, Ala.
Dunn Wire-Cut-Log Brick Co., Cincinnati, Ohio
Southern Clay Mfg. Co., Chattanooga, Tenn.
Standard Brick Co., Macon, Ga.
- Brick and Clayworking Machinery and Supplies.**
Chase Fdry & Mfg. Co., Columbus, O.
Fernald Brick Machinery Co., St. Louis, Mo.
Freese & Co., E. M., Galton, O.
Steele & Sons, J. C., Staeberville, N. C.
- Bridges. (Concrete.)**
Cunningham Construction Co., Shreveport, La.
Luten, Daniel B., Indianapolis, Ind.
Requarth Co., O. W., Charlotte, N. C.
Turner, O. A. P., Minneapolis, Minn.
- Bridges. (Rolling Lift.)**
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
- Bridges. (Steel.)**
American Bridge Co. of New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Case Crane & Engineering Co., Columbus Ohio.
Champion Bridge Co., Wilmington, Ohio.
Chicago Bridge & Iron Works, Chicago, Ill.
Cunningham Construction Co., Shreveport, La.
East St. Louis Bridge Co., East St. Louis, Ill.
Richmond Structural Steel Co., Richmond, Va.
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
Vincennes Bridge Co., Vincennes, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.
- Bridge and Structural Iron Paints.**
Chattanooga Paint Co., Chattanooga, Tenn.
- Bridge Builders. (Timber.)**
Murray & Co. Inc., W. D., Norfolk, Va.
- Brimstones.**
Union Sulphur Co., New York, N. Y.
- Buckets. (Olam Shell.)**
Hayward Company, New York, N. Y.
Williams Company, G. H., Cleveland, Ohio.
- Buckets. (Orange Peel.)**
Hayward Co., The, New York, N. Y.
- Buckets. (Dredging, Excavating, Sewer, etc.)**
Hayward Co., New York, N. Y.
Monaghan Mch. Co., Chicago, Ill.
Williams Co., The G. H., Cleveland, O.
- Buckets. (Grab.)**
Hunt Co., Inc., C. W., West New Brighton, N. Y.
- Buckets. (Ore Handling.)**
Caldwell & Son Co., H. W., Chicago, Ill.
Hayward Co., New York, N. Y.
Link-Belt Co., Nicetown (Philadelphia), Pa.
Williams Co., The G. H., Cleveland, O.
- Burr Stones.**
Starr Co., B. F., Baltimore, Md.
- Builders and Contractors.**
Interstate Const. Co., Louisville, Ky.
Stone & Webster Eng. Corp., Boston, Mass.
Turner, O. A. P., Minneapolis, Minn.
White Companies, J. G., New York, N. Y.
- Building Stone**
Atlantic Stone Co., Atlanta, Ga.
Bedford Steam Stone Works, Bedford, Ind.
- Building Supplies.**
Harris Bros. Co., Chicago, Ill.
Southern Building Material Co., Norfolk, Va.
- Burners. (Oil.) [See Fuel Oil Equipments.]**
- Bushings. (Oilless, for Loose Pulleys.)**
Metalline Co., Long Island City, N. Y.
- Cables.**
Broderick & Bascom Rope Co., St. Louis, Mo.
Roebbing's Sons Co., John A., Trenton, N. J.
- Cables. (Underground.)**
Safety Insulated Wire & Cable Co., New York, N. Y.
- Cables and Wires. (Insulated.)**
American Steel & Wire Co., Chicago, Ill.
Safety Insulated Wire & Cable Co., New York, N. Y.
- Cableways. (Overhead Suspension.)**
Amburn Co. (Tramway Department, New York, N. Y.)
Broderick & Bascom Rope Co., St. Louis, Mo.
Flory Mfg. Co., S., Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Roebbing's Sons Co., John A., Trenton, N. J.
- Can and Box Making Machinery. (Tin.)**
Blies Co., E. W., Brooklyn, N. Y.
Max Amis Machine Co., Mt. Vernon, N. Y.
- Canning Machinery and Supplies.**
Robins & Co., A. E., Baltimore, Md.
Sprague Canning Machinery Co., Chicago, Ill.
- Carborundum Paper and Cloth.**
Carborundum Co., Niagara Falls, N. Y.
- Cars. (Dump, Industrial, Logging and Mine.)**
Austin Mfg. Co., Chicago, Ill.
Chase Fdry & Mfg. Co., Columbus, O.
Curd, Geo. B., Cincinnati, Ohio
Electric Wheel Co., Quincy, Ill.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hunt Co., C. W., Inc., West New Brighton, N. Y.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Liver Mfg. Co., Wm. J., Knoxville, Tenn.
Western Wheel Scraper Co., Ashtabula, Ill.
- Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]**
- Car Unloaders.**
Bonney Supply Co., Rochester, N. Y.
- Car Wheels, Axles and Trucks.**
Carnegie Steel Co., Pittsburgh, Pa.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
- Cast Iron Pipes. (See Pipes.) [Cast Iron.]**
- Castings. (Aluminum.)**
Aluminum Company of America, Pittsburgh, Pa.
- Castings. (Brass and Bronze.)**
McKenna Bros. Brass Co., Pittsburgh, Pa.
Triumph Electric Co., Cincinnati, O.
- Castings. (Gray Iron.)**
Columbian Iron Works, Chattanooga, Tenn.
Georgia Car & Locomotive Co., Atlanta, Ga.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Hull's Sons, D. F., Hagerstown, Md.
Lynchburg Foundry Co., Lynchburg, Va.
Phoenix Iron Works Co., Meadville, Pa.
U. S. East Iron Pipe & Fdry. Co., Burlington, N. J.
Valk & Murdoch Iron Works, Charleston, S. C.
Westbrook Elevator Co., Danville, Va.
- Castings. (Malleable Iron and Steel.)**
Columbus Malleable Iron Co., Columbus, Ohio.
General Malleable Co., Warren, O.
Marion Malleable Iron Works, The, Marion, Ind.
Missouri Malleable Iron Co., East St. Louis, Ill.
- Castings. (Steel.)**
Orrible Steel Castings Co., Lansdowne, Pa.
Hoffman & Co., Inc., R. O., Baltimore, Md.
Phoenix Iron Works Co., Meadville, Pa.
Riverside Steel Casting Co., Newark, N. J.
- Ceilings. (Metal.)**
Edwards Manufacturing Co., Cincinnati, O.
Keighly Metal Cell. & Mfg. Co. S., Pittsburgh, Pa.
- Cement.**
Climchfield Portland Cem. Corp., Kingsport, Tenn.
Dixie Portland Cement Co., Chattanooga, Tenn.
Hartman Cement Co., Wm. G., Philadelphia, Pa.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Kosmos Portland Cement Co., Inc., Louisville, Ky.
Lehigh Portland Cement Co., Allentown, Pa.
Southern States Portland Cem. Co., Rockmart, Ga.
Standard Portland Cement Co., Leeds, Ala.
- Cement Machinery.**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Power & Mining Machinery Co., Cudahy, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Chains. (Dredge, Quarry, Steam Shovel.)**
Welmer Chain & Iron Co., Lebanon, Pa.
- Chemists. (Analytical and Consulting.)**
Davis, Geo. C., Philadelphia, Pa.
Froehling & Robertson, Richmond, Va.
Hunt & Co., Robt. W., Chicago, Ill.
Little Inc., A. D., Boston, Mass.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
Wiley & Co., Baltimore, Md.
- Chloride Accumulator.**
Electric Storage Battery Co., The, Philadelphia, Pa.
- Chucks.**
Morris Twist Drill & Mch. Co., New Bedford, Mass.
- Cities and Towns. (Commercial and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]**
- Clamps. (For Concrete Forms.)**
Sterling Wheelbarrow Co., Milwaukee, Wis.
- Clayworking Machinery. [See Brick and Clayworking Machinery and Supplies.]**
- Cleansing Compound. (Floors, Etc.)**
India Alkali Works, Boston, Mass.
- Clocks. (Watchman.)**
Watchman's Clock & Supply Co., New York, N. Y.
- Clutches. (Friction.)**
Affiliated Manufacturers Co., Milwaukee, Wis.
Medart Patent Pulley Co., St. Louis, Mo.
Moore & White Co., The, Philadelphia, Pa.
- Coal.**
Climchfield Coal Corp., Danville, Va.
Climchfield Fuel Co., Spartanburg, S. C.
Consolidation Coal Co., Inc., New York, N. Y.
Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.
- Coal Cutters.**
Jeffery Mfg. Co., Columbus, O.
- Coal Handling Machinery.**
Bartlett & Snow Co., C. O., Cleveland, O.
Guarantee Construction Co., New York, N. Y.
Hayward Co., New York, N. Y.
Hunt Co., C. W., Inc., West New Brighton, N. Y.
Jeffery Mfg. Co., Columbus, O.
Link-Belt Co., Nicetown (Philadelphia), Pa.
Welmer Mfg. Co., Chicago, Ill.
- Coal Tar and By-Products.**
Harrett Mfg. Co., Philadelphia, Pa.
- Coal Tippers.**
American Bridge Co. of New York, N. Y.
- Coke.**
Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.
- Cold Store Doors.**
Brecht Co., The, St. Louis, Mo.
- Collections.**
Craig Mercantile Agency, Houston, Texas.
- Colleges and Schools.**
Rensselaer Polytechnic Institute, Troy, N. Y.
- Colleges. (Technical.)**
Rensselaer Polytechnic Institute, Troy, N. Y.
- Columbs. (Porch, Interior, Pergola.)**
Nickerson Mfg. Co., Knoxville, Tenn.
- Commission Merchants. (Export & Import.)**
Duckett & Co., Inc., A. W., New York, N. Y.
- Concrete Construction. (Reinforced.)**
Berry-Fortune Construction Co., Easton, Ga.
Corrugated Bar Co., Buffalo, N. Y.
Cunningham Construction Co., Shreveport, La.
Foster-Creighton Const. Co., Nashville, Tenn.
Guarantee Construction Co., New York, N. Y.
Jeffery Mfg. Co., Columbus, O.
Requarth Co., O. W., Charlotte, N. C.
Turner, O. A. P., Minneapolis, Minn.
- Concrete Curb Protector. (Steel.)**
Steel Protected Concrete Co., Philadelphia, Pa.
- Concrete Mixers. [See Mixers. (Concrete)]**
- Concrete Reinforcing Bars.**
Bourne-Fuller Co., The, Cleveland, O.
Carnegie Steel Co., Pittsburgh, Pa.
Corrugated Bar Co., Buffalo, N. Y.
District Brothers, Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Hoffman & Co., R. O., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.
Laclede Steel Co., St. Louis, Mo.
Pardee Works, O., Perth Amboy, N. J.
Republic Iron & Steel Co., Youngstown, O.
Sweets Steel Co., Williamsport, Pa.
- Concrete Reinforcing Bar Couplings.**
Marion Malleable Iron Works, Marion, Ind.
- Concrete Reinforcing Wire and Wire Fabric.**
American Steel & Wire Co., Chicago, Ill.
Roebbing's Sons Co., John A., Trenton, N. J.
- Condensers.**
Alberger Pump & Condenser Co., New York, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Crescent-Morris Co., Philadelphia, Pa.
Dean Bros., Steam Pump Wks., Indianapolis, Ind.
Westinghouse Machine Co., Pittsburgh, Pa.
York Mfg. Co., York, Pa.
- Conductor Pipe.**
Edwards Mfg. Co., Cincinnati, O.
- Conduits. (Electrical.)**
National Metal Molding Co., Pittsburgh, Pa.
- Conduits. (Interior)**
National Metal Molding Co., Pittsburgh, Pa.
- Conduits. (Steel.)**
National Metal Molding Co., Pittsburgh, Pa.
- Conduit Fittings.**
National Metal Molding Co., Pittsburgh, Pa.
- Contractors. (Concrete.)**
Berry-Fortune Construction Co., Easton, Ga.

- Contractors (Drainage)**
Globe Dredging Co., Savannah, Ga.
Thompson & Mossley, Greensboro, N. C.
- Contractors (Dredging)**
Globe Dredging Co., Savannah, Ga.
- Contractors (Hydro-Electric Developments.)**
Beynath Co., O. W., Charlotte, N. C.
- Contractors (Water Supply.)**
Layne & Bowler Co., Houston, Tex.
- Contractor's Machinery and Supplies.** [See also Hoisting Machinery.]
American Clay Machinery Co., The Bucyrus, Ohio.
Austin Mfg. Co., Chicago, Ill.
Bryce Mach. Co., The John F. Ravenna, O.
Curd, Geo. B., Cincinnati, O.
Flory Mfg. Co., S. Bangor, Pa.
Hyde Bros. Steel & Rail Co., Pittsburgh, Pa.
Marine Metal & Supply Co., New York, N. Y.
Mihura Co., Alex. N., Baltimore, Md.
Monaghan Mch. Co., Chicago, Ill.
National Hoisting Engine Co., Harrison, N. J.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Sterwood, E. G., New York, N. Y.
Sutcliffe Machinery Co., New York, N. Y.
Thaw & Williams, Cincinnati, O.
- Conveying and Elevating Machinery.**
Amburn Co., (Tramway Department), New York, N. Y.
Bartlett & Snow Co., C. O., Cleveland, O.
Cudwell & Son Co., H. W., Chicago, Ill.
Flory Mfg. Co., S. Bangor, Pa.
Guarantee Construction Co., New York, N. Y.
Sut Co., C. W., Inc., West New Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Co., Nicotom, (Philadelphia) Pa.
Mihura Gravity Carrier Co., Ellwood City, Pa.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Weller Mfg. Co., Chicago, Ill.
- Cooperage Stock and Box Shook Machinery.**
Gerlach Co., Peter, Cleveland, O.
- Cordage.**
Broderick & Bascom Rope Co., St. Louis, Mo.
Columbian Rope Co., Auburn, N. Y.
Waterbury Co., New York, N. Y.
- Corn-Mill Machinery.**
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Sarr Co., H. F., Baltimore, Md.
Wolf Co., Chambersburg, Pa.
- Cotton Oil and Products.**
American Cotton Oil Co., New York, N. Y.
- Cotton Yarns.** (Commission Merchants.)
Paulson, Linkroom & Co., New York, N. Y.
- Cotton-Gin Machinery.**
Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
Gibbs Machinery Co., Inc., Columbia, S. C.
Murray Co., The, Atlanta, Ga.
- Cotton-Mill Machinery.**
Draper Co., Hopkedge, Mass.
Mason Machine Works, Taunton, Mass.
Soo-Lowell Shop, Boston, Mass.
Whitinsville Spinn'g Ring Co., Whitinsville, Mass.
- Cotton-Mill Supplies.**
American Supply Co., Providence, R. I.
Whitinsville Spinn'g Ring Co., Whitinsville, Mass.
- Cottonseed-Oil Machinery.**
Buckeye Iron & Brass Works, Dayton, O.
Burrus Engineering Co., Atlanta, Ga.
Cardwell Machine Co., Richmond, Va.
Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
French Oil Mill Machinery Co., Piqua, O.
Murray Co., The, Atlanta, Ga.
Sut Iron Works Co., Dayton, Ohio.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Couplings.**
American Spiral Pipe Works, Chicago, Ill.
Golden's Foundry & Machine Co., Columbus, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.
- Couplings. (Car.)**
Reimer Chain & Iron Co., Lebanon, Pa.
- Couplings. (Hose, Air, Gas, Steam and Water.)**
National Tube Co., Pittsburgh, Pa.
- Coverings. (Pipe, Boiler, etc.)**
John-Manville Co., H. W., New York, N. Y.
Southern Asbestos Mfg. Co., Inc., Richmond, Va.
- Cranes. (Locomotive.)**
Ohio Locomotive Crane Co., Bucyrus, O.
- Cranes. (Traveling, Hand, Power, Hydraulic.)**
Case Crane & Engineering Co., Columbus, Ohio.
Lane Mfg. Co., Mountpelier, Vt.
Spindel, J. G., Reading, Pa.
- Crayons.**
Georgia Talc Co., Asheville, N. C.
Lowell Crayon Co., Lowell, Mass.
- Crosscutting Equipment.**
Casey-Hedges Co., Chattanooga, Tenn.
Struthers-Wells Co., Warren, Pa.
Walsh & Wedder Boiler Co., Chattanooga, Tenn.
- Crosscutting Works.**
American Crosscut Works, New Orleans, La.
Internal Crosscut & Cons. Co., Galveston, Tex.
National Lumber & Cross. Co., Texarkana, Ark.
Southern Crosscutting Co., Ltd., Sibley, La.
Southern Paving Const. Co., Chattanooga, Tenn.
Southern Wood Preserving Co., Atlanta, Ga.
- Crossarms and Pins.**
Western Electric Co., New York, N. Y.
- Crossarms. (Crosscut.)**
American Crosscut Works, New Orleans, La.
Internal Crosscut & Cons. Co., Galveston, Tex.
National Lumber & Cross. Co., Texarkana, Ark.
Southern Crosscutting Co., Ltd., Sibley, La.
Southern Paving Const. Co., Chattanooga, Tenn.
Southern Wood Preserving Co., Atlanta, Ga.
- Crossings. (See Railroad Frogs and Switches.)**
- Crosstie Machine.**
Standard Portable Saw Mill Co., New Orleans, La.
- Crossties. (Crosscut.)**
American Crosscut Works, New Orleans, La.
Internal Crosscut & Cons. Co., Galveston, Tex.
National Lumber & Cross. Co., Texarkana, Ark.
Southern Crosscutting Co., Ltd., Sibley, La.
Southern Paving Const. Co., Chattanooga, Tenn.
Southern Wood Preserving Co., Atlanta, Ga.
- Crossties. (Steel.)**
Carnegie Steel Co., Pittsburgh, Pa.
- Crushed Stone. (Road Concrete and Ballast.)**
American Ballast Co., Knoxville, Tenn.
Atlantic Stone Co., Atlanta, Ga.
Bald Mountain Quarry, Newson, N. C.
Chickamauga Quarry & Construction Co., Chattanooga, Tenn.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Weston Brook Quarry Co., Columbia, S. C.
- Crushers. (Corn and Cob.)**
Gruesler Pat. Crusher & Pulv. Co., St. Louis, Mo.
Jeffrey Mfg. Co., Columbus, O.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Crushers. (Rock.)**
Austin Mfg. Co., Chicago, Ill.
Buchanan Co., Inc., C. G., New York, N. Y.
Chalmers & Williams, Inc., Chicago Heights, Ill.
Power & Mining Machinery Co., Cudahy, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Universal Road Mch. Co., Kingston, N. Y.
Western Wheeled Scraper Co., Aurora, Ill.
Wheeling Mold & Fdry. Co., Wheeling, W. Va.
- Crushing and Pulverizing Machinery.**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Austin Mfg. Co., Chicago, Ill.
Bartlett & Snow Co., C. O., Cleveland, O.
Buchanan Co., Inc., C. G., New York, N. Y.
Chalmers & Williams, Inc., Chicago Heights, Ill.
Gruesler Pat. Crusher & Pulv. Co., St. Louis, Mo.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Stedman's Foundry & Machine Works, Aurora, Ind.
Western Wheeled Scraper Co., Aurora, Ill.
Wheeling Mold & Fdry. Co., Wheeling, W. Va.
- Culvert Pipe. (Cast Iron.)**
American Cast Iron Pipe Co., Birmingham, Ala.
Clow & Sons, James B., Chicago, Ill.
Donaldson Iron Co., Emsau, Pa.
Giamorgan Pipe & Foundry Co., Lynchburg, Va.
Lynchburg Foundry Co., Lynchburg, Va.
Massillon Iron & Steel Co., Massillon, Ohio.
Wood & Co., R. D., Philadelphia, Pa.
- Culverts. (Corrugated Metal.)**
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Armco Culvert Pub. Bureau, Cincinnati, O.
Atlas Metal Works, Dallas, Tex.
Canton Culvert and Sile Co., The, Canton, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Gallion Iron Works & Mfg. Co., The, Gallion, Ohio.
Lone Star Culvert Co., Houston, Tex.
National Corrugated Culvert Mfg. Co., Warren, Pa.
Newport Culvert Co., Inc., Newport, Ky.
Salisbury Metal Culvert Co., Inc., Salisbury, N. C.
Tennessee Metal Culvert Co., Nashville, Tenn.
Virginia Metal & Culvert Co., Inc., Roanoke, Va.
- Culverts. (Vitrified Pipe.)**
Southern Sewer Pipe Co., Birmingham, Ala.
Stevens Sons Co., H., Macon, Ga.
- Curb Protector. (Steel.)**
Steel Protected Concrete Co., Philadelphia, Pa.
- Cutter Grinders.**
Vitrified Wheel Co., Westfield, Mass.
- Cutting. (Oxy-Acetylene Process.)**
Prest-O-Lite Co., Inc., The, Indianapolis, Ind.
- Cuts. (Half Tone, Line, Etc.)**
Alpha Photo Engraving Co., Balto, Md.
- Dams. (Reinforced Concrete.)**
Herry-Fortune Construction Co., Easton, Ga.
- Derricks and Derrick Fittings.**
Byers Mach. Co., The John F. Ravenna, O.
Hayward Co., The, New York, N. Y.
Monaghan Machine Co., Chicago, Ill.
- Designers and Illustrators. (Printed Matter.)**
Alpha Photo Engraving Co., Baltimore, Md.
- Disposal Plants. (Garbage Incinerators.)**
Stacy-Bates Co., Minneapolis, Minn.
- Ditching Machinery.**
American Steel Dredge Co., Fort Wayne, Ind.
Ray City Dredge Works, Ray City, Mich.
Economy Excavator Co., Iowa Falls, Iowa.
Fairbanks Steam Shovel Co., Marion, O.
Hayward Co., The, New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Monaghan Machine Co., Chicago, Ill.
The Automatic Shovel Co., Lorain, Ohio.
Williams Co., The, G. H., Cleveland, O.
- Doors. (Steel Rolling.)**
Kinner Mfg. Co., Columbus, O.
Van Hurling, J. M., Atlanta, Ga.
- Doors. (Tin Clad.)**
Victor Mfg. Co., Newburyport, Mass.
- Double Seamers.**
Max Amis Machine Co., Mt. Vernon, N. Y.
- Draftsman.**
Childrey Co., Richmond, Va.
- Draftsmen's Supplies.**
Weber & Co., F., Philadelphia, Pa.
- Dredging Contractors.** [See Contractors (Dredging).]
- Dredge Chains.**
Welder Chain & Iron Co., Lebanon, Pa.
- Dredges. (See Excavating Machinery.)**
- Drills. (Pneumatic.)** [See also Drills Rock and Mining.]
- Drills. (Prospecting.)**
Keystone Steam Well Mach. Co., Beaver Falls, Pa.
- Drills. (Rock and Mining.)**
Jeffrey Mfg. Co., Columbus, O.
Sullivan Mch. Co., Chicago, Ill.
Wickes Bros., Jersey City, N. J.
- Drills. (Twist.)**
McKenna Bros. Brass Co., Pittsburgh, Pa.
More Twist Drill & Mch. Co., New Bedford, Mass.
- Drive Well Points and Well Supplies.**
National Tube Co., Pittsburgh, Pa.
- Drop Forgings.**
American Spiral Pipe Works, Chicago, Ill.
- Drop Forging Machinery.**
Biles Co. E. W., Brooklyn, N. Y.
- Dryers. (Sand.)** [See Sand Dryers.]
- Dry Docks. (Builders of)**
American Bridge Co., of New York, N. Y.
- Drying Machinery.**
American Process Co., New York, N. Y.
Bailley-Lobby Co., The, Charleston, S. C.
Buffalo Forge Co., Buffalo, N. Y.
- Coatesville, Boiler Works, Coatesville, Pa.**
Cummer & Son Co., F. D., The, Cleveland, Ohio
Hersey Manufacturing Co., South Boston, Mass.
Ruggles-Coles Engineering Co., New York, N. Y.
Sturtevant Co., H. F., Hyde Park, Boston, Mass.
- Dry Kilns.**
Buffalo Forge Co., Buffalo, N. Y.
Moore Dry Kiln Co., L., Jacksonville, Fla.
- Dry Kiln Equipment.**
Moore Dry Kiln Co., L., Jacksonville, Fla.
- Dumbwaiters. (Hand Power.)**
McKenna Bros. Brass Co., Pittsburgh, Pa.
Spindel, J. G., Reading, Pa.
- Dump Wagons and Wagon Boxes.**
Troy Wagon Works Co., Troy, O.
- Dust-Collecting Systems.**
Buffalo Forge Co., Buffalo, N. Y.
King Co., F. E., Norfolk, Va.
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.
- Dynamite. (Industrial and Agricultural.)**
Du Pont De Nemours Powder Co., E. I.
Keystone Nat'l Powder Co., Emporium, Pa.
- Dynos and Motors.**
Assets Purchasing Co., Wheeling, W. Va.
General Electric Co., Schenectady, N. Y.
Pan Electric Mfg. Co., St. Louis, Mo.
Terry Steam Turbine Co., Hartford, Conn.
Triumph Electric Co., Cincinnati, O.
Western Electric Co., New York, N. Y.
- Leaves. (Trough.)**
Edwards Mfg. Co., Cincinnati, O.
- Ejectors. (Sewage.)**
Lunkenheimer Co., The, Cincinnati, O.
Pacific Flush Tank Co., New York, N. Y.
- Electric Machinery. (Dynos, Generators, Motors, etc.)**
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
American Elevator & Mch. Co., Louisville, Ky.
Crockier-Wheeler Co., Ampere, N. J.
Engberg Electric & Mechanical Works, St. Joseph, Mich.
Fairbanks-Morse & Co., Atlanta, Ga.
General Electric Co., Schenectady, N. Y.
Lee Electric Co., Baltimore, Md.
Moore & Co., Edgar M., Pittsburgh, Pa.
Pan Electric Mfg. Co., St. Louis, Mo.
Piedmont Electric Co., Asheville, N. C.
Scheiner Co., R., Philadelphia, Pa.
Schroeder Electric Co., Evansville, Ind.
Sturtevant Co., H. F., Hyde Park Boston, Mass.
Triumph Electric Co., Cincinnati, O.
Wilson Mch. Co., Harold R., St. Louis, Mo.
- Electrical Contractors, Instruments and Supplies.**
Crockier-Wheeler Co., Ampere, N. J.
Economy Fuse & Mfg. Co., Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Hilli & Co., Walter E., Baltimore, Md.
Lee Electric Co., Baltimore, Md.
Lery-Morton Co., Columbus, Ga.
Piedmont Electric Co., Asheville, N. C.
Walker Electrical & Plumbing Co., Rome, Ga.
- Electric Light Plants. (Portable.)**
Schroeder Electric Co., Evansville, Ind.
- Electro-Magnet. (See Magnet Electro.)**
- Elevating, Conveying and Power Transmission Machinery.** [See also Conveying and Elevating Machinery and Power Transmission Mchry.]
- Elevator.**
ELECTRIC.
American Electric Machine & Elevator Co., St. Louis, Mo.
Curren Elevator Co., James H., Cincinnati, Ohio.
Grote Mfg. Co., F., Evansville, Ind.
K. O. Elevator Mfg. Co., Kansas City, Mo.
Miller Elevator Mfg. Co., Wm. A., St. Louis, Mo.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Machine Co., Columbus, Ohio.
Otis Elevator Co., New York, N. Y.
Spindel, J. G., Reading, Pa.
Warshaw Elevator Co., Baltimore, Md.
Westbrook Elevator Co., Danville, Va.
- HAND AND BELT POWER.**
American Electric Machine & Elevator Co., St. Louis, Mo.
Curren Elevator Co., James H., Cincinnati, O.
K. O. Elevator Mfg. Co., Kansas City, Mo.
Miller Elevator Mfg. Co., Wm. A., St. Louis, Mo.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Machine Co., Columbus, Ohio.
Otis Elevator Co., New York, N. Y.
Spindel, J. G., Reading, Pa.
Weber & Co., F., Philadelphia, Pa.
- HYDRAULIC.**
American Electric Machine & Elevator Co., St. Louis, Mo.
Curren Elevator Co., James H., Cincinnati, O.
K. O. Elevator Mfg. Co., Kansas City, Mo.
Miller Elevator Mfg. Co., Wm. A., St. Louis, Mo.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Machine Co., Columbus, Ohio.
Otis Elevator Co., New York, N. Y.
Spindel, J. G., Reading, Pa.
Weber & Co., F., Philadelphia, Pa.
- STEAM HYDRAULIC.**
Ridgway & Son Co., The, Coatesville, Pa.
- Elevators. (Automatic.)**
Mathews Gravity Carrier Co., Ellwood City, Pa.
- Elevators. (Portable for Warehouses, etc.)**
Economy Engineering Co., Chicago, Ill.
- Elevator Bolts.**
Upon Nut Co., The, Cleveland, O.
- Elevator Buckets.**
Caldwell & Son Co., H. W., Chicago, Ill.
Hendrick Mfg. Co., Carbondale, Pa.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Nicotom (Philadelphia), Pa.
- Elevator Enclosures and Cabs.**
Boiles Iron & Wire Works, J. E., Detroit, Mich.
Dow Wire & Iron Works Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Barget & Co., Baltimore, Md.
Meyers Mfg. Co., The Fred J., Hamilton, O.
Ohio Elevator & Machine Co., The, Columbus, O.
Otis Elevator Co., New York, N. Y.
- Elevator Ropes. (See Wire Rope.)**
- Elevator Safety Gates.**
American Elec. Mch. & Elevator Co., St. Louis, Mo.
Richmond Safety Gate Co., Richmond, Ind.
- Emery Wheels. (See Grinding Wheels.)**
- Engineers.**
APPRAISAL.
Atlantic Engineering Co., Savannah, Ga.
Day & Zimmerman, Philadelphia, Pa.
Farree Co., The H. G., Memphis, Tenn.
Waller, Francis R., Washington, D. C.
- BLAST FURNACES.**
Smythe Co., The S. R., Pittsburgh, Pa.
- BRIDGE.**
Atlantic Engineering Co., Savannah, Ga.
Greiner & Whitman, Baltimore, Md.
Martin Co. A. J., Portsmouth, Ohio.
- CHEMICAL.**
Crosby, Walter W., Baltimore, Md.
Institute of Industrial Research, Washington, D. C.
Little, Inc., A. D., Boston, Mass.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
- CIVIL.**
Arnold Co., The, Chicago, Ill.
Brown & Clarkson, Washington, D. C.
Farree Co., H. G., Memphis, Tenn.
Hogues Engineering Ass'n., Charleston, W. Va.
Knowles, Morris, Pittsburgh, Pa.
Mole, H. E., New York, N. Y.
Pain & Young, Tampa, Fla.
Potter, Alexander, New York, N. Y.
Renshaw & Breese, Huntington, W. Va.
Rucker, B. Parks, Chattanooga, Tenn.
Shand Engineering Co., Columbia, S. C.
Stevens, Harry, Washington, D. C.
Thompson & Mossley, Greensboro, N. C.
Waldo, W., Houston, Tex.
Walker Engineering Corp., Tampa, Fla.
White Companies, J. G., New York, N. Y.
- DAMS.**
Martin Co., A. J., Portsmouth, Ohio.
Quick, Alfred M., Baltimore, Md.
Requarth Co., C. W., Charlotte, N. C.
Spiker, William O., Atlanta, Ga.
Weller, Francis R., Washington, D. C.
White Companies, J. G., New York, N. Y.
- DOCKS.**
Greiner & Whitman, Baltimore, Md.
- DRAINAGE AND IRRIGATION.**
Atlantic Engineering Co., Savannah, Ga.
Brown & Clarkson, Washington, D. C.
Dabney Engineering Co., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Hogues Engineering Co., Inc., Charleston, W. Va.
Keilholtz, P. O., Baltimore, Md.
Lery-Morton Co., Columbus, Ga.
Lide, Martin J., Birmingham, Ala.
Mole, H. E., New York, N. Y.
Rucker, B. Parks, Charlotte, N. C.
Stone & Webster Engr. Corp., Boston, Mass.
Tucker & Laxton, Charlotte, N. C.
White, Gilbert O., Charlotte, N. C.
- ELECTRIC LIGHT AND POWER PLANTS.**
Dabney Engineering Co., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Graves Engineering Co., Inc., New York, N. Y.
Keilholtz, P. O., Baltimore, Md.
Kelly, Thos. C., Cincinnati, Ohio.
Lery-Morton Co., Columbus, Ga.
Martin Co., A. J., Portsmouth, Ohio.
Scotfield Engineering Co., Philadelphia, Pa.
Stone & Webster Engr. Corp., Boston, Mass.
Weller, Francis R., Washington, D. C.
White Companies, J. G., New York, N. Y.
White, Gilbert O., Charlotte, N. C.
- GAS.**
Ford, Bacon & Davis, New York, N. Y.
Gas Engineering Co., Trenton, N. J.
Renshaw & Breese, Huntington, W. Va.
- GEOLOGICAL.**
Brown & Clarkson, Washington, D. C.
Davis, Geo. C., Philadelphia, Pa.
Frothing & Robertson, Richmond, Va.
Greiner & Whitman, Baltimore, Md.
Hogues Engineering Co., Charleston, W. Va.
Institute of Industrial Research, Washington, D. C.
Renshaw & Breese, Huntington, W. Va.
- HYDRO-ELECTRIC.**
Atlantic Engineering Co., Savannah, Ga.
Brown & Clarkson, Washington, D. C.
Greiner & Whitman, Baltimore, Md.
Howe, Charles F., Macon, Ga.
Knowles, Morris, Pittsburgh, Pa.
Quick, Alfred M., Baltimore, Md.
Requarth Co., C. W., Charlotte, N. C.
Rucker, B. Parks, Charlotte, N. C.
Scotfield Engineering Co., Philadelphia, Pa.
Syring, J. E., Greenville, S. C.
Spiker, William O., Atlanta, Ga.
Tucker & Laxton, Charlotte, N. C.
Weller, Francis R., Washington, D. C.
White Companies, J. G., New York, N. Y.
- INDUSTRIAL PLANT.**
Cunningham Construction Co., Shreveport, La.
Day & Zimmerman, Philadelphia, Pa.
Farree Co., The H. G., Memphis, Tenn.
Gilman, Harry L., Boston, Mass.
Guarantee Construction Co., New York, N. Y.
Institute of Industrial Research, Washington, D. C.
Kelly, Thos. C., Cincinnati, Ohio.
- INDUSTRIAL PLANT.**
Little, Inc., A. D., Boston, Mass.
Rucker, B. Parks, Charlotte, N. C.
Scotfield Engineering Co., Philadelphia, Pa.
Shearer, O. E., Memphis, Tenn.
Stone & Webster Engr. Corp., Boston, Mass.
Stevens, Harry, Washington, D. C.
White Companies, J. G., New York, N. Y.
- INSPECTIONS AND TESTS.**
Crosby, Walter W., Baltimore, Md.
Frothing & Robertson, Richmond, Va.
Hill, Nicholas S., Jr., and S. F. Ferguson, New York, N. Y.
Hunt & Co., Robert W., Chicago, Ill.
Institute of Industrial Research, Washington, D. C.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
- LANDSCAPE.**
Berkmans Co., F. J., Augusta, Ga.
Crosby, Walter W., Baltimore, Md.
Pain & Young, Tampa, Fla.
- LIGHTING.**
Ford, Bacon & Davis, New York, N. Y.
McCrory & Co., J. B., Atlanta, Ga.
Rucker, B. Parks, Charlotte, N. C.

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Engineers.

MECHANICAL.

Arnold Co., The, Chicago, Ill.
Kelly, Thos. C., Cincinnati, Ohio.
Kide, Martin J., Birmingham, Ala.
McLundie, A. S., Chattanooga, Tenn.
Stevens, Harry, Washington, D. C.
Tucker & Laxton, Charlotte, N. C.

MINING.

Brown & Clarkson, Washington, D. C.
Grimsley, G. F., Martinsburg, W. Va.
Hogue Engineering Ass'n, Charleston, W. Va.
Jones, E. M., Chattanooga, Tenn.
Renshaw & Breece, Huntington, W. Va.

MUNICIPAL.

Anderson & Christie, Charlotte, N. C.
Brown & Clarkson, Washington, D. C.
Crosby, Walter W., Baltimore, Md.
Dabney Engineering Co., Memphis, Tenn.
Elrod, Henry E., Dallas, Texas.
Graves Engineering Co., Inc., New York, N. Y.
Greiner & Whitman, Baltimore, Md.
Havely, H. B., Monroe, N. C.
Hogue Engineering Ass'n, Charleston, W. Va.
Knowles, Morris, Pittsburgh, Pa.
McCarty Bros. & Cheves, Inc., Charleston, S. C.
McCarty Co., J. B., Atlanta, Ga.
Pew, Arthur, Atlanta, Ga.
Shand Engineering Co., Columbia, S. C.
Walker Engineering Corp., Tampa, Fla.
White, Gilbert C., Charlotte, N. C.

PAVING AND ROAD.

Anderson & Christie, Charlotte, N. C.
Atlantic Engineering Co., Savannah, Ga.
Crosby, Walter W., Baltimore, Md.
Elrod, Henry E., Dallas, Texas.
Havely, H. B., Monroe, N. C.
Institute of Industrial Research, Washington, D. C.
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Shand Engineering Co., Columbia, S. C.
Walker Engineering Corp., Tampa, Fla.
White, Gilbert C., Charlotte, N. C.

PUBLIC SERVICE PROPERTIES.

Day & Zimmerman, Philadelphia, Pa.
Ferree Co., The, H. G., New York, N. Y.
Ford, Bacon & Davis, New York, N. Y.
Gilman, Harry L., Boston, Mass.
Graves Engineering Co., Inc., New York, N. Y.
Scottish Engineering Co., Philadelphia, Pa.
Stone & Webster Engr. Corp., Boston, Mass.
Weller, Francis R., Washington, D. C.
White Companies, J. G., New York, N. Y.

REINFORCED CONCRETE. (Bridges, Buildings, etc.)

Conningham Construction Co., Shreveport, La.
Foster-Creighton-Gould Co., Nashville, Tenn.
Guarantee Construction Co., New York, N. Y.
Interstate Const. Co., Louisville, Ky.
Luten, Daniel H., Indianapolis, Ind.
Marlin Co., A. J., Evansville, Ind.
Potter, Alexander, New York, N. Y.
Requarth Co., O. W., Charlotte, N. C.
Savannah Eng. & Construction Co., Savannah, Ga.
Spiker, William O., Atlanta, Ga.
Tucker & Laxton, Charlotte, N. C.
White Companies, J. G., New York, N. Y.

RIVER AND HARBOR.

Gilman, Harry L., Boston, Mass.

SEWERAGE AND WATER WORKS.

Anderson & Christie, Charlotte, N. C.
Brown & Clarkson, Washington, D. C.
Dabney Engineering Co., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Graves Engineering Co., Inc., New York, N. Y.
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Miller, Hiram Allen, Boston, Mass.
Myers, E. W., Greensboro, N. C.
Pew, Arthur, Atlanta, Ga.
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Pottier, Alfred M., Baltimore, Md.
Stevens, Harry, Washington, D. C.
Walker Engineering Corp., Tampa, Fla.
White Companies, J. G., New York, N. Y.
White, Gilbert C., Charlotte, N. C.

STEEL WORK AND ROLLING MILLS.

Smythe Co., The, S. R., Pittsburgh, Pa.

STRUCTURAL STEEL.

Foster-Creighton-Gould Co., Nashville, Tenn.
Shawyer, C. E., Memphis, Tenn.
Spiker, Wm. C., Atlanta, Ga.
Renshaw & Breece, Huntington, W. Va.

THEATRE CONSTRUCTION.

Gatlin, W. R., Hopkinsville, Ky.

Engines.

COMPRESSED AIR.

Dake Engine Co., Grand Haven, Mich.

GAS AND GASOLINE.

Affiliated Manufacturers Co., Milwaukee, Wis.
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
Cooper Co., O. & G., Mt. Vernon, Ohio.
De La Vergne Machine Co., New York, N. Y.
Gas Engineering Co., Trenton, N. J.
Gibbs Machinery Co., Inc., Columbia, S. C.
Mieks, A., New York, N. Y.
Portsmouth Engine Co., Portsmouth, O.
Power Mfg. Co., Lima, Ohio.
Southern Engine & Boiler Works, Jackson, Tenn.
Van Dusen, Roy Co., The, Columbus, O.
Westinghouse Machine Co., The, Pittsburgh, Pa.

Oil.

Bolinders Co., New York, N. Y.
Chicago Pneumatic Tool Co., Chicago, Ill.
De La Vergne Machine Co., New York, N. Y.
Fairbanks-Morse & Co., Atlanta, Ga.
Meltz, A., New York, N. Y.
Power Mfg. Co., Lima, Ohio.
Snow Steam Pump Works, The, New York, N. Y.

STEAM.

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
Ball Engine Co., Erie, Pa.
Buffalo Forge Co., Buffalo, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Cooper Co., O. & G., Mt. Vernon, Ohio.
Dake Engine Co., Grand Haven, Mich.
Engberg Electric & Mechanical Works, St. Joseph, Mich.
Gibbs Machinery Co., Inc., Columbia, S. C.
Griffith & Wedge Co., The, Zanesville, O.
Harris Bros. Co., Chicago, Ill.
Houston, Stanwood & Gamble Co., Cincinnati, O.
Laffel & Co., James, Springfield, O.
Lombard Iron Works, Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Phoenix Iron Works Co., Madison, Pa.
Schodell Iron Works, Macon, Ga.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
Viller Mfg. Co., Milwaukee, Wis.
Westinghouse Machine Co., Pittsburgh, Pa.

Envelopes.

Young & Seiden Co., Baltimore, Md.

Excavating Machinery.

American Clay Machinery Co., The, Bucyrus, Ohio.
American Steel Dredge Co., Fort Wayne, Ind.
Bay City Dredge Works, Bay City, Mich.
Byers Mach. Co., The John F., Ravenna, O.
Economy Excavator Co., Iowa Falls, Iowa.
Fairbanks Steam Shovel Co., Marion, O.
Hayward Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Keystone Drill & Equipment Co., Beaver Falls, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Monaghan Machine Co., Chicago, Ill.
Morris Machine Works, Baldwinville, N. Y.
National Hoisting Engine Co., Harrison, N. J.
The Automatic Shovel Co., Lorain, Ohio.
Williams Co., The G. H., Cleveland, O.

Excavators. (Trench.)

Bay City Dredge Works, Bay City, Mich.
Economy Excavator Co., Iowa Falls, Iowa.
Fairbanks Steam Shovel Co., Marion, O.
Hayward Co., The, New York, N. Y.
Monaghan Machine Co., Chicago, Ill.

Excelsior Machinery.

Kline, Lewis T., Alpena, Mich.

Exhaust Heads.

American Spiral Pipe Works, Chicago, Ill.

Exhibits. (Machinery Builders' Equipment and Supplies.)

Builders' Exchange, Baltimore, Md.

Expansion Joints.

Badger & Sons Co., E. B., Boston, Mass.

Expansion Joints. (Street and Road.)

Philip Carey Co., The, Cincinnati, Ohio.

Expanded Metal. [See Latb.]

Explosives.

Du Pont De Nemours Powder Co., E. I., Wilmington, Del.
Keystone Nat'l. Powder Co., Emporium, Pa.

Export Agents. (South America.)

Lutz, Friedr. W., Richmond, Va.

Factory Sites. (Town and Railroad.) [See Industrial, Agricultural and Commercial Opportunities.]

Fans. (Electric.)

General Electric Co., Schenectady, N. Y.

Fans. (Ventilating.) [See Blowers, Exhaust Fans.]

Fastener Driving Machine. (Corrugated Joint.)

Saranac Machine Co., Benton Harbor, Mich.

Feed-Water Heaters and Purifiers.

American Water Softener Co., Philadelphia, Pa.
Blake & Knowles Steam Pump Works, East Cambridge, Mass.
Murray Iron Works Co., Burlington, Ia.
National Pipe Bending Co., New Haven, Conn.
Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
Stewart Heater Co., Buffalo, N. Y.

Feed-Water Heater and Purifier and Oil Separator Combined.

Blake & Knowles Steam Pump Works, East Cambridge, Mass.
Plant Iron Works Co., Dayton, Ohio.
Stewart Heater Co., Buffalo, N. Y.

Felt. (Building, Sheathing.)

Harrell Mfg. Co., Philadelphia, Pa.

Fencing. (Woven Wire Field.)

American Steel & Wire Co., Chicago, Ill.
Cyclone Fence Co., Waukegan, Ill.
Gulf States Steel Co., Birmingham, Ala.

Fencing, Entrance Gates. (Iron, Steel, Wire.)

American Steel & Wire Co., Chicago, Ill.
Bolles Iron & Wire Wks., J. E., Detroit, Mich.
Cincinnati Iron Fence Co., Cincinnati, Ohio.
Cyclone Fence Co., Waukegan, Ill.
Dow Wire & Iron Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.
New Jersey Wire Cloth Co., Trenton, N. J.
Ohio Elevator & Mach. Co., The, Columbus, O.

Fertilizer Machy. [See also Phosphate Mch.]

Stedman's Foundry & Machine Works, Aurora, Ind.

Files.

Barnett Co., G. & H., Philadelphia, Pa.
Nicholson File Co., Providence, R. I.

Filters. (Water, for Domestic and Industrial Purposes.)

American Water Softener Co., Philadelphia, Pa.
International Filter Co., Chicago, Ill.
New York Const. Jewell Fil. Co., New York, N. Y.

Fire Clay. [See Brick, Fire.]

Richmond Safety Gate Co., Richmond, Ind.
Victor Mfg. Co., Newburyport, Mass.

Fire Extinguishers.

Badger & Sons Co., E. B., Boston, Mass.

Fire Escapes.

Bolles Iron & Wire Works, J. E., Detroit, Mich.
Chesapeake Iron Works, Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.

Fire Hose.

Eureka Fire Hose Mfg. Co., New York, N. Y.

Fire Places. (Brick and Tile.)

Hood Brick Co., B. Mifflin, Atlanta, Ga.

Fireproof Building Construction. [See Concrete Construction.]

Fireproof Building Material.

Bannon Pipe Co., P., Louisville, Ky.
John-Manville Co., H. W., New York, N. Y.

Fireproof Doors and Shutters.

Kinnear Mfg. Co., Columbus, O.
Richmond Safety Gate Co., Richmond, Ind.
Victor Mfg. Co., Newburyport, Pa.
Wagner's Sons Co., J. F., Louisville, Ky.

Fireproof Windows. [See Window Frames and Sashes (Fireproof).]

Fittings. (Wire Rope.)

Waterbury Co., New York, N. Y.

Fireproofing. (Brick and Tile.)

Hood Brick Co., B. Mifflin, Atlanta, Ga.

Fixtures. (Electric Lighting.)

Hill & Co., Walter E., Baltimore, Md.

Flanges. (Iron and Steel.)

American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Construction Co., Phila., Pa.
American Spiral Pipe Works, Chicago, Ill.
Bart Mfg. Co., E. M., Providence, R. I.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
National Tube Co., Pittsburgh, Pa.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Wood & Co., R. D., Philadelphia, Pa.

Flare Lamps.

Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

Flooring. (Crescoted Block.)

Republic Crescoting Co., Indianapolis, Ind.

Flooring. (Hardwood, Maple, Oak.)

Whiting, William S., Elizabethton, N. C.

Flour and Grist Mill Machinery and Supplies.

Caldwell & Sons Co., H. W., Chicago, Ill.
Salem Foundry & Machine Works, Salem, Va.
Starr Co., B. F., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Flue Lining.

Owensboro Sewer Pipe Co., Owensboro, Ky.
Southern Sewer Pipe Co., Birmingham, Ala.

Forges.

Buffalo Forge Co., Buffalo, N. Y.

Forgings.

Weimer Chain & Iron Co., Lebanon, Pa.

Foundations. (Waterproof.)

Requarth Co., O. W., Charlotte, N. C.

Foundry Equipment and Supplies.

Hill-Branner Fdry. Supply Co., Cincinnati, O.
Newport Sand Bank Co., Inc., Newport, Ky.

Foundry Facings. (Talc and Soapstone.)

Georgia Talc Co., Asheville, N. C.
Hill-Branner Fdry. Supply Co., Cincinnati, O.

Foundry and Machine Shops.

Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Goldens Foundry & Machine Wks., Columbus, Ga.
Grainger & Co., Louisville, Ky.
Lombard Iron Works, Augusta, Ga.
Tins, E. E., Petersburg, Va.
Valk & Murdoch Iron Works, Charleston, S. C.

Frogs. [See Railroad Frogs and Switches.]

Fuel Economizer.

Green Fuel Economizer Co., Mattawan, N. Y.

Fuel Oil.

Gulf Refining Co., Pittsburg, Pa.
U. S. Asphalt Refining Co., New York, N. Y.

Furnaces. (For Industrial Purposes.)

Smythe Co., The, S. R., Pittsburgh, Pa.

Fuses. (Electrical.)

Economy Fuse & Mfg. Co., Chicago, Ill.

Fuse Shells. (Renewable.)

Economy Fuse & Mfg. Co., Chicago, Ill.

Fuses, Bases and Fittings.

John-Manville Co., H. W., New York, N. Y.

Galvanized Steel and Iron.

American Sheet & Tin Plate Co., Pittsburgh, Pa.
La Belle Iron Works, Steubenville, O.
McCalla, Inc., Harold, Philadelphia, Pa.
Whittaker-Glessner Co., Portsmouth Plant, Portsmouth, Ohio.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

Garage and House. (Portable.)

Dixie Culvert & Metal Co., Atlanta, Ga.

Garbage Disposal Plants.

Stacy-Bates Co., Minneapolis, Minn.

Gas Blowers. (Turbine.)

Terry Steam Turbine Co., Hartford, Conn.

Gas Engines. [See Engines, Gas.]

Gas Machines.

Kemp Mfg. Co., O. M., Baltimore, Md.

Gas Plants.

Gas Engineering Co., Trenton, N. J.
Power & Mining Machinery Co., Oudash, Wis.
Western Gas Construction Co., Ft. Wayne, Ind.

Gas Producers.

Smythe Co., The, S. R., Pittsburgh, Pa.
Westinghouse Machine Co., Pittsburgh, Pa.
Wood & Co., R. D., Philadelphia, Pa.

Gasoline and Kerosene.

Gulf Refining Co., Pittsburg, Pa.

Gas and Steam Fitters' Tools.

Randall's Sons, D., Tonkers, N. Y.

Gears.

Caldwell & Sons Co., H. W., Chicago, Ill.
Crescon-Morris Co., Philadelphia, Pa.
James Mfg. Co., D. O., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.

Generating Sets.

Engberg Electric & Mechanical Works, St. Joseph, Mich.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
Triumph Electric Co., Cincinnati, O.

Geologists.

Davis, Geo. O., Phila., Pa.
Froehling & Robertson, Richmond, Va.
Grimsley, G. P., Martinsburg, W. Va.

Glass. (Plate, etc.)

Rinswanger & Co., Memphis, Tenn.

Governors. (Steam Engine.)

Pickering Governor Co., Portland, Conn.

Grain Elevator Supplies.

Caldwell & Sons Co., H. W., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Nicetown (Philadelphia), Pa.

Granite.

Southern Marble & Granite Co., Spartanburg, S. C.

Graphite.

Dixon Crucible Co., Joseph, Jersey City, N. J.

Grates and Grate Bars.

Huber Grate Bar & Stoking Co., Baltimore, Md.
Thomas Grate Bar Co., Birmingham, Ala.

Gravel.

Arundel Sand & Gravel Co., Baltimore, Md.

Gravel. (Roofing and Road)

American Ballast Co., Knoxville, Tenn.

Gravity Spiral Chutes.

Mathews Gravity Carrier Co., Ellwood City, Pa.

Grease.

Albany Lubricating Co., New York, N. Y.

Grease Cups.

Albany Lubricating Co., New York, N. Y.

Greases and Lubricating Compounds.

Albany Lubricating Co., New York, N. Y.
Galena Signal Oil Co., Franklin, Pa.
Robinson & Son Co., Wm. G., Baltimore, Md.

Grinders. (Gypsum, Limestone, etc.)

Stedman's Foundry & Machine Wks., Aurora, Ind.

Grinding Wheels.

Carborandum Co., Niagara Falls, N. Y.
Vitrified Wheel Co., Westfield, Mass.

Groovers.

Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.

Gunpowder.

Du Pont De Nemours Powder Co., E. I., Wilmington, Del.
Keystone National Powder Co., Emporium, Pa.

Handle Machinery. [See Woodworking Mch.]

Hangers. [See Pulleys, Shafting and Hangers.]

Hay Tools.

Myers & Bro., F. E., Ashland, Ohio.

Heater. (Asphalt.)

Cummar & Son Co., F. D., The, Cleveland, Ohio.

Heating Apparatus, Engineers and Contractors.

Insulated Wires and Cables.

Safety Insulated Wire & Cable Co., New York, N. Y.

Insulating Materials.General Electric Co., Schenectady, N. Y.
John-Manville Co., H. W., New York, N. Y.**Insurance.**

Hartford Steam Boiler Inspector & Insurance Co., Hartford, Conn.

Investment Securities.New First National Bank, Columbus, O.
Porell, Garard & Co., Chicago, Ill.
Provident Savings Bank & Trust Co., Cincinnati, Ohio.**Iron.**Allegheny Steel Co., Pittsburgh, Pa.
La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
Union Iron Works, Beaver Falls, Pa.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.**Irrigation Machinery.**

Harrison Steam Pump Wks., A. S. New York, N. Y.

Kettles. (Steam Jacket.)

Badger & Sons Co., E. R., Boston, Mass.

Lace Leather.

Grison & Knight Mfg. Co., Worcester, Mass.

Lamps. (Arc and Incandescent.)Boston-Economy Lamp Division, Danvers, Mass.
General Electric Co., Schenectady, N. Y.
Lee Electric Co., Baltimore, Md.
Piedmont Electric Co., Asheville, N. C.**Lamps. (Carbon and Tungsten.)**

Newman Electric Lamp Co., Cincinnati, O.

Lamp Posts. (Electric, Gas.)

Western Gas Construction Co., Ft. Wayne, Ind.

Lands. (Mineral, Timber, Farm, etc.)

[See Industrial, Agricultural and Commercial Opportunities.]

Landscape Architects. (See Engineers.)**Lathes. (Engine.)**

Greaves, Kinsman Tool Co., The, Cincinnati, O.

Lawn Furniture. (Wire.)Bolles Iron & Wire Works, J. E., Detroit, Mich.
Cincinnati Iron Fence Co., Cincinnati, Ohio.
Defer & Co., Baltimore, Md.
Defer, Baggett & Co., Baltimore, Md.**Lights. (Portable Acetylene.)**

Milburn Co., Alex. N., Baltimore, Md.

Liquor Filters.

International Filter Co., Chicago, Ill.

Lithographers, Engravers.

Young & Seiden Co., Baltimore, Md.

Lockers (Steel)Bernstein Mfg. Co., Phila., Pa.
Eighley Metal Ceiling Mfg. Co., S., Pittsburgh, Pa.
Harris & Co., Camden, N. J.
Van Hurlingen, J. M., Atlanta, Ga.**Locomotives.**INDUSTRIAL.
Baldwin Locomotive Wks., The, Philadelphia, Pa.
Climax Mfg. Co., Corry, Pa.
Ord, Geo. B., Cincinnati, O.
Davenport Locomotive Works, Davenport, Ia.
Fus Co., J. D., Plymouth, Ohio.
Jeffrey Mfg. Co., Columbus, O.
Lima Locomotive Corporation, Lima, O.
Porter Co., H. K., Pittsburgh, Pa.
Southern Iron & Equipment Co., Atlanta, Ga.**RAILWAY.**Baldwin Locomotive Wks., The, Philadelphia, Pa.
Lima Locomotive Corporation, Lima, O.
Porter Co., H. K., Pittsburgh, Pa.**Looms and Weaving Machinery.**Draper Co., Hopedale, Mass.
Mason Machine Works, Taunton, Mass.
New-Lowell Shops, Boston, Mass.**Loom Harness.**

American Supply Co., Providence, R. I.

Lubricants.Albany Lubricating Co., New York, N. Y.
Oils Elevator Co., New York, N. Y.**Lubricants. (Graphite.)**

Dixon Crucible Co., Joseph, Jersey City, N. J.

Lumber.

Industrial Lumber Co., Elizabeth, La.

Lumber. (Crescote.)

American Crescote Works, New Orleans, La.

Lumber. (Heavy Construction, Pitch Pine, etc.)Industrial Lumber Co., Elizabeth, La.
National Lumber & Crescote Co., Texarkana, Ark.**Lumber Buggies.**

Sola Steam Feed Works, Meridian, Miss.

Lumber Stackers.

Sola Steam Feed Works, Meridian, Miss.

Machinery. (Special.)Wm. Co., E. W., Brooklyn, N. Y.
Eagle Mfg. Co., Cincinnati, Ohio.
Guss, Lewis T., Alpena, Mich.
Universal Machine Co., Baltimore, Md.**Machinery and Supplies. (New and Second-Hand Bargains.)**Ames Purchasing Co., Wheeling, W. Va.
Bailey & James Boiler & Mch. Co., Joplin, Mo.
Birtwell, W. L., Phila., Pa.
Boston Iron & Metal Co., Balto., Md.
Cleveland Belting & Machinery Co., Cleveland, O.
Dodge & Son, New York, N. Y.
Harris Bros. Co., Chicago, Ill.
Hobbs Bros. Steel & Rail Co., Pittsburgh, Pa.
Lohman, Charles T., Birmingham, Ala.
Lodge & Shipley Mach. Tool Co., Cincinnati, O.
Marine Metal & Supply Co., New York, N. Y.
Moore & Co., Edgar M., Pittsburgh, Pa.New River Co., Macdonald, W. Va.
Nussbaum & Co., V. M., Fort Wayne, Ind.
Planmuller Engineering Co., Chicago, Ill.
Power Equipment Co., New York, N. Y.
Prentiss Tool & Supply Co., New York, N. Y.
Randle Machinery Co., Cincinnati, O.
Read Co., Howard W., Philadelphia, Pa.
Sachsenmaier & Co., George, Philadelphia, Pa.
Samuel, Frank, Philadelphia, Pa.
Seyfert's Sons, Inc., L. E., Philadelphia, Pa.
Southern Mchry. Exchange, Jacksonville, Fla.
South Side Fdry. & Mch. Co., Charleston, W. Va.
Stearns, John C., Kansas City, Mo.
Tampa Machinery Exchange, Tampa, Fla.
Toomey, Frank, Philadelphia, Pa.
Wilson Machy. Co., Harold, R., St. Louis, Mo.**Machine Tools.**

Greaves, Kinsman Tool Co., The, Cincinnati, O.

Machinists. (Engineers.)

Universal Machine Co., Baltimore, Md.

Magnesia Materials.

John-Manville Co., H. W., New York, N. Y.

Magnetic Separators.

Buchanan & Co., Inc. C. G., New York, N. Y.

Mail Chutes.

Outier Mail Chute Co., Rochester, N. Y.

Mechanical Draft.Buffalo Forge Co., Buffalo, N. Y.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.**Metal Ceilings. [See Ceilings, Metal.]****Metaline.**

Metaline Co., Long Island City, N. Y.

Metal. (For Tanks, Culverts, Roofing, etc.)

Whittaker-Greaser Co., Portsmouth Plant, Portsmouth, Ohio.

Metal Culverts. [See Culverts.] (Corrugated Metal.)**Metal Shingles. [See Shingles.] (Metal.)****Metal Window Frames and Sash. [See Window Frames and Sash.] (Fireproof.)****Metal Work. [See Sheet Metal Work.]****Metal-Working Machinery. (Sheet.)**

Bliss Co., E. W., Brooklyn, N. Y.

Meters. (Water.)

Alberger Pump & Condenser Co., New York, N. Y.

Meter Boxes, Couplings, Gauges. (Water.)

Clark Co., H. W., Mattoon, Ill.

Micrometers, Calipers, etc.

Starrett Co., L. S., Athol, Mass.

Milk Filters. (Liquor, Milk, etc.)

International Filter Co., Chicago, Ill.

Mill Engineers and Architects.O'Brian, W. O., Memphis, Tenn.
Sirrins, J. E., Greenville, S. C.**Mill Supplies.**Bailey-Lobby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Gainesville Iron Works, Gainesville, Ga.
Lombard Iron Works, Augusta, Ga.
Lunkenheimer Co., The, Cincinnati, O.
Mecklenburg Iron Works, Charlotte, N. C.
Salem Foundry & Machine Wks., Salem, Va.
Starr Co., B. F., Baltimore, Md.
Wolf Co., Chambersburg, Pa.**Mining Machinery. (Gold, Copper, Plate, etc.)**Bartlett & Snow Co., C. O., Cleveland, O.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Mecklenburg Iron Works, Charlotte, N. C.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.**Mixers. (Concrete.)**Milwaukee Concrete Mixer Co., Milwaukee, Wis.
Van Duzens, Roy Co., The, Columbus, O.**Mixing Machinery.**

Dunning, W. D., Syracuse, N. Y.

Mortar Colors.

Chattanooga Paint Co., Chattanooga, Tenn.

Motor Trucks. (Gasoline.)

White Co., The, Cleveland, O.

Motor Trucks. (Second Hand.)

Mar-Dei Mobue Co., Baltimore, Md.

Municipal Castings.

Clarksville Fdry. & Mach. Works., Clarksville, Tenn.

Music Wire.

American Steel & Wire Co., Chicago, Ill.

Nails. (Cut.)

La Belle Iron Works, Steubenville, O.

Nails and Spikes.La Belle Iron Works, Steubenville, Ohio.
Republic Iron & Steel Co., Youngstown, O.
Youngstown Sheet & Tube Co., Youngstown, O.**Nuts. [See Bolts, Nuts, Rivets, etc.]****Office Furniture (Steel)**

Merritt & Co., Camden, N. J.

Oil. (Crescote.)

Barrett Mfg. Co., Philadelphia, Pa.

Oils. (Lubricating, Etc.)Albany Lubricating Co., New York, N. Y.
Galena Signal Oil Co., Franklin, Pa.
Gulf Refining Co., Pittsburgh, Pa.
Robinson & Son Co., Wm. G., Baltimore, Md.**Oil Cans.**

Wall Mfg. Supply Co., P., Allegheny, Pa.

Oil Engines. [See Engines (Oil).]**Oil Separators.**

Stewart Heater Co., Buffalo, N. Y.

Oil Well Machinery.Keystone Steam Well Mach. Co., Beaver Falls, Pa.
Williams Bros., Ithaca, N. Y.**Ore Handling Machinery. [See Coal Handling Machinery.]****Ornamental Iron Works.**Bolles Iron & Wire Wks., J. E., Detroit, Mich.
Chesapeake Iron Works, Baltimore, Md.
Dow Wire & Iron Works, Louisville, Ky.
Ohio Elevator & Mach. Co., The, Columbus, O.
Scribner & Sons Co., The, Cincinnati, O.
Speed Architectural Iron Works, Louisville, Ky.**Oxygen.**

International Oxygen Co., New York, N. Y.

Oxygen Generators.

International Oxygen Co., New York, N. Y.

Oxy-Acetylene Welding and Cutting Outfit and Supplies.

International Oxygen Co., New York, N. Y.

Packing. (Asbestos, Metallic, Rubber, Leather, etc.)Grakon & Knight Mfg. Co., Worcester, Mass.
Jenkins Bros., New York, N. Y.
John-Manville Co., H. W., New York, N. Y.
Power Specialty Co., New York, N. Y.
United Lead Co., New York, N. Y.**Packing. (Lead Wool.)**

United Lead Co., New York, N. Y.

Paint. (Metal Surfaces.)

Dixon Crucible Co., Joseph, Jersey City, N. J.

Paint. (Preservative.)

Reeves Co., The, New Orleans, La.

Paint. (Roofing, Building, etc.)Cameron & Barkley Co., Charleston, S. C.
Chattanooga Paint Co., Chattanooga, Tenn.**Paper. (Roofing, Building, Sheeting, etc.)**Barrett Mfg. Co., Philadelphia, Pa.
Cameron & Barkley Co., Charleston, S. C.**Partitions. (Wooden Rolling.)**

Van Hurlingen, J. M., Atlanta, Ga.

Patents and Inventions.

Russell Machine Co., F. K., Dallas, Tex.

Patent Attorneys.Brown, Eugene G., Washington, D. C.
Chandies & Chandies, Washington, D. C.
Coleman, Watson E., Washington, D. C.
Duffie & Co., John S., Washington, D. C.
Evans & Co., Victor J., Washington, D. C.
Fitzgerald & Co., W. T., Washington, D. C.
Henderson, Vernon E., Washington, D. C.
Jenner, Herbert, Washington, D. C.
Lacey, R. S. & A. R., Washington, D. C.
McLundie, A. S., Chattanooga, Tenn.
Parker, C. L., Washington, D. C.
Woodworth John R., Washington, D. C.**Pavement Filler.**

Barrett Mfg. Co., Philadelphia, Pa.

Paving Blocks. (Crescote.)

International Crescoting & Construction Co., Galveston, Tex.

National Lumber & Crescoting Co., Texarkana, Ark.

Southern Crescoting Co., Indianapolis, Ind.

Southern Paving Const. Co., Chattanooga, Tenn.

Southern Wood Preserving Co., Atlanta, Ga.

U. S. Wood Preserving Co., New York, N. Y.

Wyckoff Pipe & Crescoting Co., Inc., The, New York, N. Y.

Paving Blocks. (Granite.)

Southern Marble & Granite Co., The, Spartanburg, S. C.

Paving Brick.Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingile Shale Brick Co., Birm'gh'm, Ala.
Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio
Southern Clay Mfg. Co., Chattanooga, Tenn.
Standard Brick Co., Macon, Ga.**Perforated Metal.**Caldwell & Son, H. W., Chicago, Ill.
Erdle Perforating Co., Rochester, N. Y.
Hendricks Mfg. Co., The, Carbondale, Pa.
Manhattan Perforated Metal Co., New York, N. Y.
Mundt & Sons, Charles, Jersey City, N. J.**Petroleum Refiners.**

Gulf Refining Co., Pittsburg, Pa.

Standard Oil Co., Inc., Newark, N. J.

Phosphate Machinery.American Process Co., New York, N. Y.
Bailey-Lobby Co., The, Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Link Belt Co., Nicetown (Philadelphia), Pa.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Raymond Impact Pulv. Co., Chicago, Ill.
Valk & Murdoch Iron Works, Charleston, S. C.**Pig Iron.**La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.**Pile Drivers.**

Vulcan Iron Works, Chicago, Ill.

Pile Driving and Wharf Building.

Murray & Co., Inc., W. D., Norfolk, Va.

Piling. (Crescote.)American Crescote Works, New Orleans, La.
Intern'l Crescoting & Const. Co., Galveston, Tex.
Southern Crescoting Co., Ltd., Siftell, La.
Southern Paving Const. Co., Chattanooga, Tenn.**Pillow Blocks.**Golden's Foundry & Machine Co., Columbus, Ga.
Medart Patent Pulley Co., St. Louis, Mo.**Pipe.**Allegheny Steel Co., Pittsburgh, Pa.
La Belle Iron Works, Steubenville, Ohio.
National Tube Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.**Pipe. (Cast Iron.)**American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Construction Co., Phila., Pa.
Clow & Sons, James B., Chicago, Ill.
Donaldson Iron Co., Emaus, Pa.
Giamorgan Pipe & Foundry Co., Lynchburg, Va.
Lynchburg Foundry Co., Lynchburg, Va.
Masillon Iron & Steel Co., Masillon, O.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Warren Fdry. & Mach. Co., New York, N. Y.
Wood & Co., R. D., Philadelphia, Pa.**Pipe. (Coil.)**

Frick Co., The, Waynesboro, Pa.

National Pipe Bending Co., New Haven, Conn.

York Mfg. Co., York, Pa.

Pipe. (Corrugated Culvert.) [See Culvert (Corrugated Metal).]**Pipe (Lead)**

United Lead Co., New York, N. Y.

Pipe. (Riveted.)

Keeler Co., E., Williamsport, Pa.

Pipe. (Second Hand.)Eagle Pipe Supply Co., New York, N. Y.
Marine Metal & Supply Co., New York, N. Y.**Pipe. (Spiral Riveted.)**

American Spiral Pipe Works, Chicago, Ill.

Pipe. (Spiral Steel.)

Standard Spiral Pipe Works, Chicago, Ill.

Pipe. (Sewer, Vitrified.) [See Sewer Pipe, Vitrified.]

Wyckoff & Son Co., A., Elmira, N. Y.

Pipe. (Wrought Iron.)

Youngstown Sheet & Tube Co., Youngstown, O.

Pipe Bends.

Pittsburgh Valve, Fdry. & Const. Co., Pittsburgh, Pa.

Pipe Covering. (Steam.)Chesapeake Roofing & Pipe Covering Co., Baltimore, Md.
Southern Asbestos Mfg. Co., Inc., Richmond, Va.
Wyckoff & Son Co., A., Elmira, N. Y.**Pipe Cutting and Threading Machinery.**

Saunders' Sons, D., Yonkers, N. Y.

Pipe Fittings.American Cast Iron Pipe Co., Birmingham, Ala.
Lunkenheimer Co., The, Cincinnati, O.
Pittsburgh Valve, Fdry. & Const. Co., Pittsburgh, Pa.

Warren Fdry. & Mach. Co., New York, N. Y.

York Mfg. Co., York, Pa.

Pipe Jointing. (Gas and Water Main.)

United Lead Co., New York, N. Y.

Pipe Unions and Joints.

Dart Mfg. Co., E. M., Providence, R. I.

National Tube Co., Pittsburgh, Pa.

Pipe Wrenches and Cutters.

Saunders' Sons, D., Yonkers, N. Y.

Piping System. (Designed and Installed.)

Pittsburgh Valve, Foundry & Construction Co., Pittsburgh, Pa.

Pitch.

Barrett Mfg. Co., Philadelphia, Pa.

Plaster Machinery.

Bartlett & Snow Co., C. O., Cleveland, O.

Plates.Allegheny Steel Co., Pittsburgh, Pa.
Cincinnati Iron & Steel Co., Cincinnati, O.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.**Pneumatic Tools. [See Tools—Pneumatic.]****Poles. (Crescote.)**

American Crescote Works

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Pulverizers.

Austin Mfg. Co., Chicago, Ill.
 Grondier Pat. Crusher & Pulv. Co., St. Louis, Missouri.
 Jeffrey Mfg. Co., Columbus, O.
 McLanahan-Stone Mach. Co., Holidaysburg, Pa.
 Raymond Bros., Impact Pulv. Co., Chicago, Ill.
 Stedman's Foundry & Machine Wks., Aurora, Ind.
 Western Wheel Scraper Co., Aurora, Ill.

Pumping Machinery.

Affiliated Manufacturers Co., Milwaukee, Wis.
 Alberger Pump & Condenser Co., New York, N. Y.
 Cameron Steam Pump Wks., A. S. New York, N. Y.
 Cook, A. D., Lawrenceburg, Ind.
 Deane Steam Pump Co., Holyoke, Mass.
 Erie Pump & Equipment Co., Erie, Pa.
 Holland Machine Co., New York, N. Y.
 Keystone Pump & Well Engine Co., Beaver Falls, Pa.
 Moffatt Machinery Mfg. Co., Charlotte, N. C.
 Morris Machine Works, Baldwinville, N. Y.
 Myers & Bros., F. R., Ashland, O.
 Platt Iron Works Co., Dayton, Ohio.
 Wood & Co., R. D., Philadelphia, Pa.
 Worthington, Henry R., Harrison, N. J.

Pumps. (Air.)

Blakeslee Mfg. Co., Du Quoin, Ill.

Pumps. (Air Lift.)

Sullivan Mehry Co., Chicago, Ill.

Pumps. (Boiler Feed.)

Alberger Pump & Condenser Co., New York, N. Y.
 Blakeslee Mfg. Co., Du Quoin, Ill.
 Cameron Steam Pump Wks., A. S. New York, N. Y.
 Jeaneville Iron Works Co., Hazleton, Pa.
 Moffatt Machinery Mfg. Co., Charlotte, N. C.
 Murray Iron Works Co., Burlington, Ia.
 Myers & Bros., F. R., Ashland, O.

Pumps. (Centrifugal.)

Alberger Pump & Condenser Co., New York, N. Y.
 Buffalo Steam Pump Co., Buffalo, N. Y.
 Cameron Steam Pump Wks., A. S. New York, N. Y.
 Erie Pump & Equipment Co., Erie, Pa.
 Holland Machine Co., New York, N. Y.
 Jeaneville Iron Works Co., Hazleton, Pa.
 Morris Machine Works, Baldwinville, N. Y.
 Pacific Flushing Tank Co., New York, N. Y.
 Platt Iron Works Co., Dayton, Ohio.
 Wood & Co., R. D., Philadelphia, Pa.
 Worthington, Henry R., Harrison, N. J.

Pumps. (Deep Well.)

Cameron Steam Pump Wks., A. S. New York, N. Y.
 Holland Machine Co., New York, N. Y.
 Keystone Pump & Well Engine Co., Beaver Falls, Pa.
 Layne & Bowler Co., Houston, Tex.

Pumps. (Dredging.)

Buffalo Steam Pump Works, Buffalo, N. Y.
 Erie Pump & Equipment Co., Erie, Pa.
 Holland Mch. Co., New York, N. Y.
 Morris Machine Works, Baldwinville, N. Y.
 Wood & Co., R. D., Phila., Pa.

Pumps. (Hydraulic.)

Buffalo Steam Pump Co., Buffalo, N. Y.
 Cameron Steam Pump Wks., A. S. New York, N. Y.
 Cardwell Machine Co., Richmond, Va.
 Erie Pump & Equipment Co., Erie, Pa.
 French Oil Mch. Co., Dayton, Ohio.
 Holland Mch. Co., New York, N. Y.

Pumps. (Oil and Gasoline.)

Keystone Boiler & Fdry. Co., Columbia, Pa.

Pumps. (Steam.)

Alberger Pump & Condenser Co., New York, N. Y.
 Blake & Knowles Steam Pump Works, East Cambridge, Mass.
 Blakeslee Mfg. Co., Du Quoin, Ill.
 Buffalo Steam Pump Co., Buffalo, N. Y.
 Cameron Steam Pump Wks., A. S. New York, N. Y.
 Clayton Air Compressor Works, Cambridge, Mass.
 Cook, A. D., Lawrenceburg, Ind.
 Deane Steam Pump Co., Holyoke, Mass.
 Fairbanks-Morse Co., Atlanta, Ga.
 Keystone Pump & Well Engine Co., Beaver Falls, Pa.
 Murray Iron Works Co., Burlington, Ia.
 Scranton Pump Co., Scranton, Pa.
 Snow Steam Pump Works, The New York, N. Y.
 Worthington, Henry R., Harrison, N. J.

Pumps. (Trench.)

Affiliated Manufacturers Co., Milwaukee, Wis.

Pumps. (Carbine Driven.)

Sturtevant Co., B. F., Hyde Park, Boston, Mass.

Pumps. (Vacuum.)

Cameron Steam Pump Wks., A. S. New York, N. Y.

Pumps. (Water-works.)

Holland Mch. Co., New York, N. Y.

Pump Leathers.

Graton & Knight Mfg. Co., Worcester, Mass.

Punching and Shearing Machinery.

Bliss Co., E. W., Brooklyn, N. Y.

Purchasing Agents.

U. S. Purchasing Corporation, New York, N. Y.

Racks (For Pattern Storage.)

Merritt & Co., Camden, N. J.

Railroads.

[See Industrial, Agricultural and Commercial Opportunities.]

Railroad Equipment and Supplies.

(New and Second-hand.)

American Frog & Switch Co., Hamilton, O.
 Bailey-Lobby Co., The, Charleston, S. C.
 Birmingham Rail & Loco. Co., Birmingham, Ala.
 Cincinnati Frog & Switch Co., Cincinnati, O.
 Cudd, Geo. B., Cincinnati, O.
 Fairbanks-Morse Co., Atlanta, Ga.
 Foster Co., L. B., Erie, Pa.
 Georgia Car & Locomotive Co., Atlanta, Ga.
 Hirsch Rolling Mill Co., St. Louis, Mo.
 Hoffman & Co., Inc., R. C., Baltimore, Md.
 Hyde, Chas., Pittsburgh, Pa.
 Kilby Frog & Switch Co., Birmingham, Ala.
 Macleary, J. H., Suffolk, Va.
 National Steel Rail Co., St. Louis, Mo.
 Newhall Eng. Co., Geo. M., Philadelphia, Pa.
 Read Co., Howard W., Philadelphia, Pa.
 Robinson & Orr, Pittsburgh, Pa.
 Sherwood, E. C., New York, N. Y.
 Southern Iron & Equipment Co., Atlanta, Ga.
 Steel Rail Supply Co., The, New York, N. Y.
 Shaw & Williams, Cincinnati, Ohio.
 United States Rail Co., Cumberland, Md.
 Weir Frog Co., Cincinnati, O.
 Wilson & Co., E. H., Philadelphia, Pa.
 Wilson Mach. Co., Harold R., St. Louis, Mo.
 Zelnicer Supply Co., Walter A., St. Louis, Mo.

Railroad Frogs & Switches.

American Frog & Switch Co., Hamilton, O.
 Carnegie Steel Co., Pittsburgh, Pa.
 Cincinnati Frog & Switch Co., Cincinnati, O.
 Conley Frog & Switch Co., Memphis, Tenn.
 Kilby Frog & Switch Co., Birmingham, Ala.
 Newhall Engineering Co., Geo. M., Philadelphia, Pa.
 Robinson & Orr, Pittsburgh, Pa.
 Sweet's Steel Co., William, Oport, Pa.
 Weir Frog Co., Cincinnati, O.

Rails. (Steel.)

Foster Co., L. B., Pittsburgh, Pa.
 Franks, J. E., Atlanta, Ga.
 Gulf States Steel Co., Birmingham, Ala.
 Hirsch Rolling Mill Co., St. Louis, Mo.
 Hoffman & Co., Inc., R. C., Baltimore, Md.
 Hyde Bros. Steel & Rail Co., Pittsburgh, Pa.
 Hyde, Chas., Pittsburgh, Pa.
 Lackawanna Steel Co., Lackawanna, N. Y.
 Lewis & Co., Henry, Philadelphia, Pa.
 Macleary, J. H., Suffolk, Va.
 National Steel Rail Co., St. Louis, Mo.
 Newhall Eng. Co., Geo. M., Philadelphia, Pa.
 Republic Iron & Steel Co., Youngstown, O.
 Robinson & Orr, Pittsburgh, Pa.
 Sherwood, E. C., New York, N. Y.
 Southern Iron & Equipment Co., Atlanta, Ga.
 Steel Rail Supply Co., The, New York, N. Y.
 Sweet's Steel Co., William, Oport, Pa.
 Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.
 United States Rail Co., Cumberland, Md.
 Wilson & Co., E. H., Philadelphia, Pa.

Rail Braces, Crossings, etc. [See R. R. Frogs and Switches.]

Railings and Grilles. (Brass.)

Newman Mfg. Co., Cincinnati, O.

Railways. (Industrial.)

Chase Fdry. & Mfg. Co., Columbus, O.
 Cincinnati Frog & Switch Co., Cincinnati, O.
 Hunt Co., Inc., C. W., West New Brighton, N. Y.
 Link-Belt Co., Nicetown (Philadelphia), Pa.

Rams. (Hydraulic.) [See Hydraulic Ram.]

Reamers.

Morse Twist Drill & Mch. Co., New Bedford, Mass.

Reeds.

American Supply Co., Providence, R. I.

Refrigerating Machinery and Apparatus.

Huettner & Cramer Co., The, Detroit, Mich.
 Portsmouth Engine Co., Portsmouth, Del.
 Remington Machine Co., Wilmington, Del.
 Viller Mfg. Co., Milwaukee, Wis.
 Vogt Machine Co., Henry, Louisville, Ky.
 York Mfg. Co., York, Pa.

Reinforcing Bars. [See Concrete Reinforcing Bars.]

River and Harbor Improvements. (Dredges, Dock, Wharves, etc.)

Globe Dredging Co., Savannah, Ga.

Road Expansion Joints.

Phillip Carey Co., The, Cincinnati, Ohio.

Road Machinery.

Austin-Western Road Mch. Co., The, Chicago, Ill.
 Buffalo Steam Roller Co., Buffalo, N. Y.
 Erie Machine Shops, Erie, Pa.
 Galton Iron Works & Mfg. Co., The, Galton, Ohio.
 Holt Manufacturing Co., The, Peoria, Ill.
 Kelly Springfield Road Roller Co., Springfield, O.
 Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
 Thew Automatic Shovel Co., Lorain, Ohio.
 Universal Road Mch. Co., Kingston, N. Y.
 Western Wheel Scraper Co., Aurora, Ill.
 Wheeling Mold & Fdry. Co., Wheeling, W. Va.

Roadmaking Materials.

Barrett Mfg. Co., Philadelphia, Pa.
 Rocmac Road Corp. of America, Phila. Pa.
 Semet-Solvay Co., Solvay, N. Y.
 Standard Oil Co., Inc., Newark, N. J.
 U. S. Asphalt Refining Co., New York, N. Y.

Road Rollers. (Steam.)

Austin-Western Road Mch. Co., The, Chicago, Ill.
 Buffalo Steam Roller Co., Buffalo, N. Y.
 Erie Machine Shops, Erie, Pa.
 Kelly Springfield Road Roller Co., Springfield, O.
 Ohio Tractor-Roller Sales Co., Columbus, Ohio.
 Universal Road Mch. Co., Kingston, N. Y.

Road Oil.

Standard Oil Co., Inc., Newark, N. J.
 U. S. Asphalt Refining Co., New York, N. Y.

Road Preservatives.

Barrett Mfg. Co., Philadelphia, Pa.
 Gulf Refining Co., Pittsburgh, Pa.
 Semet-Solvay Co., Solvay, N. Y.
 Standard Oil Co., Inc., Newark, N. J.
 U. S. Asphalt Refining Co., New York, N. Y.

Road Scarifiers.

Buffalo Steam Roller Co., Buffalo, N. Y.

Rock Crushers. [See Crushers, Rock.]

Roller Covering Supplies.

American Supply Co., Providence, R. I.

Roofing. (Ready Prepared: Felt, Tar, Asbestos, Asphalt.)

American Sheet & Tin Plate Co., Pittsburgh, Pa.
 Asbestos Protected Metal Co., Pittsburgh, Pa.
 Barrett Mfg. Co., Philadelphia, Pa.
 Cameron & Barkley Co., Charleston, S. C.
 Chesapeake Roofing & Pipe Covering Co., Baltimore, Md.
 Johns-Manville Co., H. W., New York, N. Y.

Roofing. (Metal Shingles.) [See Shingles, Metal.]

Cortright Metal Roofing Co., Philadelphia, Pa.
 Edwards Mfg. Co., The, Cincinnati, O.

Roofing. (Slate.)

East Bangor Consol. Slate Co., East Bangor, Pa.
 Genuine Bangor Slate Co., Easton, Pa.
 Johnson, E. J., New York, N. Y.
 Standard Slate Corp., Esmond, Va.

Roofing and Siding. (Metal.)

American Sheet & Tin Plate Co., Pittsburgh, Pa.
 Asbestos Protected Metal Co., Pittsburgh, Pa.
 Cameron & Barkley Co., Charleston, S. C.
 Cortright Metal Roofing Co., Philadelphia, Pa.
 Edwards Mfg. Co., The, Cincinnati, O.
 Hyndman Roofing Co., Cincinnati, O.
 Southern Sheet & Tin Plate Co., Ashland, Ky.
 Steel Products Co., The, Savannah, Ga.
 Tennessee Coal & Iron Co., Nashville, Tenn.
 Whitaker-Glessner Co., Portsmouth Works, Portsmouth, Ohio.
 Youngstown Sheet & Tube Co., Youngstown, O.

Ropes. (Manila, Steel, Hemp, etc.)

Broderick & Bascom Rope Co., St. Louis, Mo.
 Columbian Rope Co., Auburn, N. Y.
 Waterbury Co., New York, N. Y.
 Wood's Sons Co., T. B., Chambersburg, Pa.

Rope Drives.

Caldwell & Son, H. W., Chicago, Ill.
 Cresson-Morris Co., Philadelphia, Pa.
 Jones & Laughlin Steel Co., Pittsburgh, Pa.
 Medart Patent Pulley Co., St. Louis, Mo.
 Waterbury Co., New York, N. Y.
 Wood's Sons Co., T. B., Chambersburg, Pa.

Rubber Goods.

Eureka Fire Hose Mfg. Co., New York, N. Y.

Rules. (Steel.)

Lufkin Rule Co., Saginaw, Mich.
 Starrett Co., L. S., Athol, Mass.

Sales and Vaults.

York Safe & Lock Co., York, Pa.

Sand.

Arundel Sand & Gravel Co., Baltimore, Md.
 Kirkpatrick Sand & Cement Co., Birmingham, Ala.

Sand. (Foundry.)

Newport Sand Bank Co., Inc., Newport, Ky.

Sand Dryers.

American Process Co., New York, N. Y.

Sap Stain Preventive.

Church & Dwight Co., New York, N. Y.

Sash Chains.

Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.

Saws.

Gerlach Co., Peter, Cleveland, O.
 Huether Bros. Saw Mfg. Co., Inc., Rochester, N. Y.
 Smith Machine Co., H. B., Smithville, N. J.

Saws. (Band.)

Smith Machine Co., H. B., Smithville, N. J.

Saws. (Hack.)

Starrett Co., L. S., Athol, Mass.

Sawmill Dogs.

Soule Steam Feed Works, Meridian, Miss.

Sawmills.

Gainesville Iron Works, Gainesville, Ga.
 Gibbs Machinery Co., Inc., Columbia, S. C.
 Knight Mfg. Co., Canton, O.
 Lane Mfg. Co., Montpelier, Vt.

Sawmill Machinery.

Hailey-Lobby Co., Charleston, S. C.
 Cameron & Barkley Co., Charleston, S. C.
 Chase Turbine Mfg. Co., Orange, Mass.
 Knight Mfg. Co., Canton, O.
 Lane Mfg. Co., Montpelier, Vt.
 Mecklenburg Iron Works, Charlotte, N. C.
 Schofield Iron Works, Macon, Ga.
 Southern Engine & Boiler Wks., Jackson, Tenn.

Saw Sharpeners.

Corbunum Co., Niagara Falls, N. Y.

Saw Sharpeners and Files. (Cotton Gin.)

Carver Cotton Gin Co., East Bridgewater, Mass.

Sawing Outfits. (Contractors and Industrial.)

Rutland Foundry & Machine Co., Bennington, Vt.

Scales.

Standard Scale & Supply Co., Pittsburgh, Pa.

Screens. (Fly, Window and Door.)

New Jersey Wire Cloth Co., Trenton, N. J.

Screens. (Mining, Stone, etc.)

Erdle Perforating Co., Rochester, N. Y.
 Hendrick Mfg. Co., Carbondale, Pa.
 Jeffrey Mfg. Co., Columbus, O.
 McLanahan-Stone Mach. Co., Holidaysburg, Pa.
 Mundt & Sons, Charles, Jersey City, N. J.
 New Jersey Wire Cloth Co., Trenton, N. J.

Screenings. (For Concrete and Road Construction.)

American Ballast Co., Knoxville, Tenn.

Screws. (Machine.)

Progressive Mfg. Co., Torrington, Conn.

Screws. (Safety Set.)

Allen Manufacturing Co., Inc., Hartford, Conn.

Screw Machine Products.

Progressive Mfg. Co., Torrington, Conn.

Separators. (Dust.)

Buffalo Forge Co., Buffalo, N. Y.

Sewer Flushing Siphons.

Pacific Flushing Tank Co., New York, N. Y.

Sewer Joint Compounds.

Pacific Flushing Tank Co., New York, N. Y.

Sewer Pipes. (Vitrified.)

Bannon Pipe Co., P., Louisville, Ky.
 Blackmer & Post Pipe Co., St. Louis, Mo.
 Cannelton Sewer Pipe Co., Cannelton, Ind.
 Owensboro Sewer Pipe Co., Owensboro, Ky.
 Pomona Terra-Cotta Co., Pomona, N. C.
 Southern Sewer Pipe Co., Birmingham, Ala.
 Stevens Sons Co., H., Macon, Ga.

Sewer Pipe and Drains. (Monolithic Concrete)

Requarth Co., O. W., Charlotte, N. C.

Sewer Supplies.

Clarksville Fdry. & Mach. Works, Clarksville, Tenn.

Sewage Pumping and Disposal Apparatus.

Pacific Flushing Tank Co., New York, N. Y.

Shafting. (Cold Rolled Steel.)

American Steel & Wire Co., Chicago, Ill.

Shafting. (Polished Steel.)

Jones & Laughlin Steel Co., Pittsburgh, Pa.
 Medart Patent Pulley Co., St. Louis, Mo.
 Pardee Works Co., Perth Amboy, N. J.
 Republic Iron & Steel Co., Youngstown, O.
 Union Drawn Steel Co., Beaver Falls, Pa.

Shafting. [See Pulleys, Shafting and Hangers.]

Sharpening Stones.

Corbunum Co., Niagara Falls, N. Y.

Sheet. Brass and Copper.

McKenna Bros., Brass Co., Pittsburgh, Pa.

Sheet Metal Work.

Atlas Metal Works, Dallas, Tex.
 Dixie Culvert & Metal Co., Atlanta, Ga.
 Eagle Mfg. Co., Cincinnati, Ohio.
 Lone Star Culvert Co., Houston, Tex.
 Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.
 Salisbury Metal Culvert Co., Salisbury, N. C.
 South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.
 Steel Products Co., The, Savannah, Ga.
 Tennessee Metal Culvert Co., Nashville, Tenn.
 Virginia Metal & Culvert Co., Roanoke, Va.
 Voigtman & Co., Chicago, Ill.

Sheet Metal Working Machinery.

Bliss Co., E. W., Brooklyn, N. Y.

Sheet Steel and Iron.

American Sheet & Tin Plate Co., Pittsburgh, Pa.
 Cincinnati Iron & Steel Co., Cincinnati, O.
 La Belle Iron Works, Steubenville, O.
 Republic Iron & Steel Co., Youngstown, O.
 Southern Sheet & Tin Plate Co., Ashland, Ky.
 Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.
 Whitaker-Glessner Co., Portsmouth Works, Portsmouth, Ohio.
 Wood Iron & Steel Co., Alan, Philadelphia, Pa.
 Youngstown Sheet & Tube Co., Youngstown, O.

Shelving. [(Steel) Vault, Store, Etc.]

Merritt & Co., Camden, N. J.

Shingles. (Metal.)

Cortright Metal Roofing Co., Philadelphia, Pa.
 Edwards Mfg. Co., Cincinnati, O.
 Hyndman Roofing Co., Cincinnati, O.
 Southern Sheet & Tin Plate Co., Ashland, Ky.

Shop Furniture. (Steel.)

Merritt & Co., Camden, N. J.

Shovels. (Special for Any Purpose.)

Conneaut Shovel Co., The, Conneaut, Ohio.

Shovels. (Steel, Brass, Aluminum, etc.)

Conneaut Shovel Co., The, Conneaut, Ohio.

Shutters. (Iron.)

Reidies Iron & Wire Works, J. E., Detroit, Mich.

Shutters. (Steel Rolling.)

Kinner Mfg. Co., Columbus, O.

Shutters. (Tin Clad.)

Victor Mfg. Co., Newburyport, Mass.

Siles. (Metal.)

Dixie Culvert & Metal Co., Atlanta, Ga.

Slate. (Roofing, Sanitary, Structural, etc.)

East Bangor Consol. Slate Co., East Bangor, Pa.
 Genuine Bangor Slate Co., Easton, Pa.
 Johnson, E. J., New York, N. Y.
 Standard Slate Corp., Esmond, Va.

Sluice Gates and Appliances.

Coldwell-Wilcox Co., Newburgh, N. Y.

Smokestacks. (Iron and Steel.)

Chattanooga Boiler & Tank Co., Chat'n'gs, Tenn.
 Des Moines Bridge & Iron Co., Des Moines, Ia.
 Keeler Co., E., Williamsport, Pa.
 Lombard Iron Works, Augusta, Ga.
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
 Schofield Iron Works, Macon, Ga.
 Virginia Bridge & Iron Co., Roanoke, Va.

Soda. (Bicarbonate.)

Church & Dwight Co., New York, N. Y.

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Steel Buildings. (Designers, Builders.)
 Amer. Bridge Co., of New York, N. Y.
 Belmont Iron Works, Philadelphia, Pa.
 Crane & Engineering Co., Columbus, Ohio.
 Champion Bridge Co., Wilmington, O.
 Chesapeake Iron Works, Baltimore, Md.
 Des Moines Bridge & Iron Co., Des Moines, Ia.
 Phoenix Iron Co., Philadelphia, Pa.
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
 Richmond Structural Steel Co., Richmond, Va.
 Schreiber & Sons Co., The L., Cincinnati, O.
 Road Architectural Iron Works, Louisville, Ky.
 Turner, O. A. P., Minneapolis, Minn.
 Virginia Bridge & Iron Co., Roanoke, Va.

Steel Castings.
 Crucible Steel Castings Co., Lansdowne, Pa.
 Edman & Co., Inc., R. O., Baltimore, Md.
 Verside Steel Casting Co., Newark, N. J.

Steel Plate Work.
 Chesapeake Iron Works, Baltimore, Md.
 Chesapeake Boiler & Tank Co., Chat'n'ga, Tenn.
 Conover's Boiler Works, Coatesville, Pa.
 Edman & Co., Inc., R. O., Baltimore, Md.
 Memphis Steel Construction Co., Memphis, Tenn.
 Phoenix Iron Co., Philadelphia, Pa.
 Struthers-Wells Co., Warren, Pa.

Steel Protector. (Concrete Carb. Steps, etc.)
 [See Carb Protector Steel.]

Steel Sheet Piling.
 Franks, J. E., Atlanta, Ga.
 Jones & Laughlin Steel Co., Pittsburgh, Pa.
 Lackawanna Steel Co., Lackawanna, N. Y.

Stencils.
 Baltimore Office Supply Co., Baltimore, Md.
 Dorman Co., J. F. W., Baltimore, Md.

Straps. (Building.)
 Chesapeake Iron Works, Baltimore, Md.

Stock Certificates, Bonds and Seals.
 Baltimore Office Supply Co., Baltimore, Md.
 Dorman Co., J. F. W., Baltimore, Md.

Stock Room Racks, Bins, Etc.
 Herrille & Co., Camden, N. J.

Stokers. (Hand.)
 Heber Grate Bar & Stoking Co., Baltimore, Md.

Stokers. (Mechanical.)
 Babcock & Wilcox Co., New York, N. Y.
 Westinghouse Machine Co., Pittsburgh, Pa.

Stones. (Building.)
 Atlantic Stone Co., Atlanta, Ga.
 Bedford Steam Stone Works, Bedford, Ind.
 Kirkpatrick Sand & Cement Co., Birmingham, Ala.

Stones. (Crushed.) [See Crushed Stone.]

Stone and Gravel Plants.
 Vetter Mfg. Co., Chicago, Ill.

Storage Batteries.
 Eac Storage Battery Co., The Philadelphia, Pa.
 Westinghouse Machine Co., Pittsburgh, Pa.

Strapping Leather.
 Mason & Knight Mfg. Co., Worcester, Mass.

Structural Steel and Iron.
 Allegheny Steel Co., Pittsburgh, Pa.
 Amer. Bridge Co. of New York, N. Y.
 Belmont Iron Works, Philadelphia, Pa.
 Borne-Fuller Co., The Cleveland, Ohio
 Carnegie Steel Co., Pittsburgh, Pa.
 Crane & Engineering Co., Columbus, Ohio.
 Champion Bridge Co., Wilmington, O.
 Chesapeake Iron Works, Baltimore, Md.
 Chicago Bridge & Iron Works, Chicago, Ill.
 Cincinnati Iron & Steel Co., Cincinnati, O.
 Des Moines Bridge & Iron Co., Des Moines, Ia.
 Detroit Bros., Baltimore, Md.
 East St. Louis Bridge Co., East St. Louis, Ill.
 Granger & Co., Louisville, Ky.
 Hoffman & Co., Inc., R. O., Baltimore, Md.
 Jones & Laughlin Steel Co., Pittsburgh, Pa.
 Lackawanna Steel Co., Lackawanna, N. Y.
 Memphis Steel Construction Co., Memphis, Tenn.
 Phoenix Iron Co., Philadelphia, Pa.
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
 Republic Iron & Steel Co., Youngstown, O.
 Richmond Structural Steel Co., Richmond, Va.
 Schreiber & Sons Co., The L., Cincinnati, O.
 Road Architectural Iron Works, Louisville, Ky.
 Southern Sheet & Tin Plate Co., Ashland, Ky.
 Steel Products Co., The Savannah, Ga.
 Tennessee Coal, Iron & R. Co., Birmingham, Ala.
 Vincennes Bridge Co., Vincennes, Ind.
 Virginia Bridge & Iron Co., Roanoke, Va.

Stump Pullers.
 Hammerman Steel Co., Lone Tree, Iowa.

Sulphur.
 Union Sulphur Co., New York, N. Y.

Super-Heaters. (Steam.)
 Babcock & Wilcox Co., New York, N. Y.
 Power Specialty Co., New York, N. Y.

Surveying Instruments.
 Vetter & Co., Philadelphia, Pa.

Sweeping Compound.
 Kidust Co., Rome, Ga.

Swinging Engines.
 Lake Engine Co., Grand Haven, Mich.

Switchboards, Switches, etc.
 General Electric Co., Schenectady, N. Y.

Switches. [See Railroad Frogs and Switches.]

Switchstands.
 Vetter & Co., Cincinnati, O.

Tackle Blocks. (For Wire or Manila Rope.)
 Broderick & Bascom Rope Co., St. Louis, Mo.

Talc and Soapstone Powders.
 Georgia Talc Co., Ashville, N. C.

Tanks. (Iron and Steel.)
 American Bridge Co., New York, N. Y.
 American Water Softener Co., Philadelphia, Pa.
 Caldwell Co., Inc., W. E., Louisville, Ky.
 Chesapeake Iron Works, Baltimore, Md.
 Chesapeake Boiler & Tank Co., Chat'n'ga, Tenn.
 Chicago Bridge & Iron Works, Chicago, Ill.
 Coatesville Boiler Works, Coatesville, Pa.
 Cole Mfg. Co., R. D., Newnan, Ga.
 Des Moines Bridge & Iron Co., Des Moines, Ia.
 Dixie Culvert & Metal Co., Atlanta, Ga.
 Hartley Boiler Works, Montgomery, Ala.
 Hendricks Mfg. Co., Carbondale, Pa.
 Lester Co., E., Williamport, Pa.
 Keystone Boiler & Foundry Co., Columbia, Pa.
 Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
 Memphis Steel Construction Co., Memphis, Tenn.
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
 Schofield Iron Works, Macon, Ga.
 Struthers-Wells Co., Warren, Pa.
 Tennessee Metal Culvert Co., Nashville, Tenn.
 Troy City Boiler Works, Bristol, Va.-Tenn.
 Virginia Bridge & Iron Co., Roanoke, Va.
 Walsh & Weldner Boiler Co., Chattanooga, Tenn.

Tanks. (Wood.)

Caldwell Co., Inc., W. E., Louisville, Ky.

Davis & Son, G. M., Palatka, Fla.

Tapes. (Measuring.)

Larkin Rule Co., Saginaw, Mich.

Starrett Co., L. S., Athol, Mass.

Telephones. (Supplies, Equipment.)

Piedmont Electric Co., Asheville, N. C.

Western Electric Co., New York, N. Y.

Telephone Service.

American Telephone & Telegraph Co.

Tenoner. (Box and Crate.)

Chase Turbine Mfg. Co., Orange, Mass.

Terra-Cotta. (Ornamental.)

Atlanta Terra-Cotta Co., Atlanta, Ga.

Pomona Terra-Cotta Co., Pomona, N. C.

Southern Building Material Co., Norfolk, Va.

Stevens' Sons Co., H., Macon, Ga.

Threshers.

Cardwell Machine Co., Richmond, Va.

Tiering Machines. (Portable.)

Economy Engineering Co., Chicago, Ill.

Tile (Drain)

Oconee Brick & Tile Co., Milledgeville, Ga.

Tile (Interior)

Amer. Enam. Brick & Tile Co., New York, N. Y.

Tile. (Mantel and Promenade.)

Hood Brick Co., E. Mifflin, Atlanta, Ga.

Tile (Structural)

Oconee Brick & Tile Co., Milledgeville, Ga.

Timbers. (Creosoted.)

American Creosote Works, New Orleans, La.

Republic Creosoting Co., Indianapolis, Ind.

Tin and Terne Plates.

American Sheet & Tin Plate Co., Pittsburgh, Pa.

Tobacco Machinery.

Buckeye Iron & Brass Works, Dayton, O.

Cardwell Machine Co., Richmond, Va.

Grote Mfg. Co., E., Evansville, Ind.

Important Information For Advertisers in Manufacturers Record

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week in advance of publication day.

When proof is required, two weeks in advance.

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TYPOGRAPHICAL ARRANGEMENT

We desire to use, as far as possible, uniform display type and borders and avoid the use of black background cuts. The uniform border is two-point plain rule for all spaces less than a full page.

Copy for advertisements other than those to be used in special departments should be prepared for two-column measure for spaces less than a quarter page; for a quarter page or larger, in two or four columns.

Tools. (Machinists.)

Holland Mfg. Co., Erie, Pa.

Morse Twist Drill & Mch. Co., New Bedford, Mass.

Tools. (Mechanical.)

Starrett Co., L. S., Athol, Mass.

Tools. Pneumatic.)

Chicago Pneumatic Tool Co., Chicago, Ill.

Torches.

Wall Mfg. Supply Co., P., Allegheny, Pa.

Towers. (Electric Transmission.)

American Bridge Co. of New York, N. Y.

Scaffs & Sons Co., Wm. B., Pittsburgh, Pa.

Towers. (Steel and Wood.)

Caldwell Co., Inc., W. E., Louisville, Ky.

Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.

Chicago Bridge & Iron Works, Chicago, Ill.

Cole Mfg. Co., R. D., Newnan, Ga.

Columbia Pump & Well Co., Washington, D. C.

Des Moines Bridge & Iron Co., Des Moines, Ia.

Memphis Steel Const. Co., Memphis, Tenn.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Track Material. (Steam & Industrial Railroads.)

Conley Frog & Switch Co., Memphis, Tenn.

Upon Nut Co., Cleveland, O.

Traction Engines.

Fairbanks-Morse & Co., Atlanta, Ga.

Holt Mfg. Co., The Peoria, Ill.

Holt Tractor-Roller Sales Co., Columbus, Ohio.

Trailers for Trucks.

Troy Wagon Works Co., Troy, Ohio.

Trailers. (Motor Trucks.)

Troy Wagon Works Co., Troy, Ohio.

Tramway. (Overhead.)

Amburn Co. (Tramway Department), New York, N. Y.

Speidel, J. G., Reading, Pa.

Tramways. (Portable.)

Amburn Co. (Tramway Department), New York, N. Y.

Tramway. (Wire Rope.)

Amburn Co. (Tramway Department), New York, N. Y.

American Steel & Wire Co., Chicago, Ill.

Broderick & Bascom Rope Co., St. Louis, Mo.

Caldwell & Sons Co., H. W., Chicago, Ill.

Link-Belt Co., Niagara Falls (Philadelphia), Pa.

Waterbury Co., New York, N. Y.

Transformers.

Crocker-Wheeler Co., Ampere, N. J.

Triumph Electric Co., Cincinnati, O.

Trench Excavator. [See Excavator (Trench).]

Trucks. (Dry Kiln.)

Moore Dry Kiln Co., L., Jacksonville, Fla.

Trucks. (Platform, Freight, Mill, Factory, etc.)

Bernstein Mfg. Co., Phila., Pa.

Chase Fdry. & Mfg. Co., Columbus, O.

Trucks. (Storage Battery Auto.)

Westinghouse Machine Co., Pittsburgh, Pa.

Trucks. (Storage Battery) [For Warehouses & Industrial Plants]

Elwell Parker Electric Co., The, New York, N. Y.

Trust Companies. [See Bankers and Brokers.]

Tubes. (Boiler.)

Allegheny Steel Co., Pittsburgh, Pa.

Cincinnati Iron & Steel Co., Cincinnati, O.

National Tube Co., Pittsburgh, Pa.

Tube Well Strainers.

Cook, A. D., Lawrenceburg, Ind.

Tubing.

La Belle Iron Works, Steubenville, O.

National Tube Co., Pittsburgh, Pa.

Youngstown Sheet & Tube Co., Youngstown, O.

Turbines. (Hydraulic.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Davis Foundry & Machine Wks., Rome, Ga.

Laffel & Co., James, Springfield, O.

Salem Foundry & Machine Wks., Salem, Va.

Smith Co., S. Morgan, York, Pa.

Turbines. (Steam.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

General Electric Co., Schenectady, N. Y.

Sturtevant Co., B. F., Hyde Park, Boston, Mass.

Terry Steam Turbine Co., Hartford, Conn.

Western Electric Co., New York, N. Y.

Westinghouse Machine Co., Pittsburgh, Pa.

Turn Buckles.

Broderick & Bascom Rope Co., St. Louis, Mo.

Turntables.

American Bridge Co., New York, N. Y.

Virginia Bridge & Iron Co., Roanoke, Va.

Twines.

Columbian Rope Co., Auburn, N. Y.

Washers and Rivets. [See Bolts, Nuts, Rivets

Studs and Washers.]

Watchmen's Clocks.

Watchman's Clock & Supply Co., New York, N. Y.

Water Filters. (See Filters, Water, etc.)

Waterproofing. (For Brick Work.)

Barrett Mfg. Co., Philadelphia, Pa.

McCormick Waterproof Portland Cement Co., St. Louis, Mo.

Waterproofing. (For Concrete.)

Barrett Mfg. Co., Philadelphia, Pa.

Johns-Manville Co., H. W., New York, N. Y.

Water-Softening Apparatus. (Purifying.)

American Water Softener Co., Philadelphia, Pa.

International Filter Co., Chicago, Ill.

N. Y. Cont. Jewell Filter Co., New York, N. Y.

Tucker & Laxton, Charlotte, N. C.

Water-Wheels. [See Turbines. (Hydraulic.)

Water-Works Construction.

Berry-Fortune Const. Co., Easton, Ga.

Water-Works Supplies and Appliances.

Allen-Scales Engineering Co., Nashville, Tenn.

American Cast Iron Pipe Co., Birmingham, Ala.

American Pipe & Constr. Co., Philadelphia, Pa.

Bourbon Copper & Brass Wks. Co., Cincinnati, O.

Clark Co., H. W., Mattoon, Ill.

Clarksville Fdry. & Mach. Works, Clarksville, Tenn.

Clow & Sons, James B., Chicago, Ill.

Coldwell-Wilcox Co., Newburgh, N. Y.

Columbian Iron Works, Chattanooga, Tenn.

Donaldson Iron Co., Emaus, Pa.

Gleanor Pipe & Foundry Co., Lynchburg, Va.

Keystone Pump & Well Engine Co., Beaver Falls, Pa.

Layne & Bowler Co., Houston, Tex.

Lynchburg Foundry Co., Lynchburg, Va.

Massillon Iron & Steel Co., Massillon, Ohio.

Pomona Terra-Cotta Co., Pomona, N. C.

Salem Fdry. & Machine Works, Salem, Va.

Standard Spiral Pipe Works, Chicago, Ill.

Stevens' Sons Co., H., Macon, Ga.

U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.

Warren Foundry & Machine Co., New York, N. Y.

Wood & Co., R. D., Philadelphia, Pa.

Welding. (Oxy-Acetylene Process.)

Freest-O-Lite Co., Inc., The Indianapolis, Ind.

Welding Plants. (Oxy-Acetylene.)

Milburn Co., Alex. N., Baltimore, Md.

Welding Apparatus. (Oxy-Acetylene Process.)

Freest-O-Lite Co., Inc., The Indianapolis, Ind.

Welding Supplies.

Freest-O-Lite Co., Inc., The Indianapolis, Ind.

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